The applicability of implementing Enhanced Milieu Teaching (EMT) with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans or IsiXhosa at home: parent and professional perspectives

By

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DECLARATION:

I, Chevonne Desiree du Plessis, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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“Now faith is being sure of what we hope for, and certain of what we do not see.” (Heb 11:1)

The completion of this dissertation has been both a challenge and a privilege. At the onset I viewed this project in isolation; saw the linear steps involved in developing, researching, and writing as removed from the routine of everyday life. If this project has taught me anything, it is that nothing is created, maintained or completed in isolation- nor should it be. Had I not had at least a strong faith and a hopeful heart in my ability to adapt to the lessons taught to me on this path, the conclusion of this journey might have been starkly different.

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when I no longer had my own. I am incredibly thankful to know my home will always lie within the hearts of those who raised me; that my home goes with me in all the moments of my life.

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ABSTRACT

Background: Enhanced Milieu Teaching (EMT) is an evidence-based naturalistic developmental behavioural intervention (NDBI) to improve expressive communication. EMT produces favourable long-term results in both vocabulary growth and linguistic structure after a relatively short intervention period. However, very little research has been conducted to prove its effectiveness in culturally and linguistically diverse populations. Furthermore, before interventions can be implemented in different contexts, there is a need to determine if any adaptations are needed to maximize the fit of the intervention to the novel context. Tension exists between the need for implementation fidelity and the flexibility or fit of an intervention into novel settings, populations and contexts. A single proof of concept study exists which indicates that a trained therapist can implement EMT to fidelity in a South African special school context with English-speaking children. However, very little research exists which documents stakeholder perspectives of the perceived fit of naturalistic developmental behavioural interventions in the South African context. This study adds to this important body of literature by documenting the perceptions of bilingual Speech and Language Therapists, as well as bilingual parents of children with developmental disabilities, regarding the applicability of EMT within the South African context.

Aim: To determine bilingual parents' and Speech and Language Therapists' perceptions regarding the acceptability and appropriateness of implementing EMT with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans or isiXhosa at home.

Methods: A descriptive exploratory study was conducted using two qualitative methods. Five bilingual SLT's were interviewed, and two focus groups with eleven bilingual parents of children with developmental disabilities was conducted thereafter. Data was transcribed and analysed using thematic analysis according to the approach suggested by Braun & Clarke, (2006). The findings of the thematic analysis were then merged as subthemes within the adaptome framework (Chambers & Norton, 2016) in order to present diverse parent and SLT perspectives adequately. The adaptome framework comprises four sources of adaptations, namely: service setting, mode of delivery, target audience and cultural adaptations.

Results: The barriers and facilitators to implementing EMT, together with the areas for potential adaptation within a multilingual and/or multicultural context, were reported in this study. Both parent and professional stakeholders reported that the core components of EMT are appropriate within their contexts and would not require adaptations. The data obtained from both parent and professional participants pertaining to potential adaptations were grouped into ten subthemes which were assigned within the four sources of adaptation. Bilingual SLTs highlighted aspects such as limited resources and limited parent-professional collaborations as barriers to sustained implementation across diverse service settings. Parents expressed concerns regarding the resources and the mode of intervention delivery used during EMT implementation. The facilitators and barriers, together with the areas for potential adaptation identified by the participants, align with perceptions of parents and professionals as reported in previous literature.

Implications: Bilingual parent and professional stakeholder participants found that the core components of EMT would be appropriate in the South African context. However, participants suggested that adaptations to the peripheral elements of EMT would be required, with the majority of the adaptations relating to preferred service delivery settings and the mode of intervention delivery.

Conclusion: Bilingual parents and Speech and Language Therapists view EMT as an appropriate and potentially valuable intervention in the South African context.

Keywords: acceptability, applicability (fit), appropriateness, developmental disabilities; enhanced milieu teaching; intervention implementation; intervention adaptations; naturalistic developmental behavioural interventions; stakeholder perspectives.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

1.1. Contextualizing the study:

Internationally, there has been increased interest to develop interventions for multilingual and multicultural populations (Mcleod, Verdon, Bowen, & Panel, 2017). The challenge of conducting interventions within a culturally and linguistically diverse population is highly relevant in South Africa (Maphalala, Pascoe, & Smouse, 2014). In many high-income countries, qualified SLTs are involved with providing intervention services to a bilingual minority group. However, within a low- to middle income context such as South Africa, most citizens are bi-lingual, and victims of the apartheid era in which economic marginalization occurred based on race (Kyarkanaye, Dada, & Samuels, 2017). Despite more than twenty years of democracy, South Africa remains one of the most unequal societies in the world. The legacy left by Apartheid continues to disadvantage over 12 million Black South African children who are currently living in poverty. This group of children comprise 73.6% of all South African children living in poverty (Statistics South Africa, 2017).

The prevalence of paediatric delayed development in South Africa is estimated at 11.2%, which equals approximately 2.1 million children presenting with delayed development in this context (Kyarkanaye et al., 2017). Children with developmental disabilities and delays often show impairments in all areas of development, and therefore the need for early intervention in this population is pivotal (Guralnick, 2011). Research has shown that children with developmental disabilities require repetition of skills, both with various communicative partners and in various communicative environments, to generalize targets (Hampton & Kaiser, 2016). The lack of access to early intervention services has detrimental outcomes across the child's social, academic and overall development (Grantham-McGregor et al., 2007). However, empirical data indicates that 84% of South African parents who are aware of difficulties in their children's communicative development, are unable to access intervention services (Popich, et al., 2006). These figures align with results from the 2013 general household survey, which indicate that 87% of the population are unable to access private health care services in South Africa (Statistics South Africa, 2013).

It is evident that access barriers exist within the public service sector which make it difficult for families of children with developmental disabilities to access the services they need. Of note, there is a lack of intervention services and qualified Speech-Language Therapists (SLTs) who can provide intervention for this group of children (Kathard & Pillay, 2013; Samuels, Slemming, & Balton, 2012), where 50% of registered South African clinicians are employed in private practice (Kathard & Pillay, 2013). Therefore, the onus of servicing over 85% of the population falls on the remaining 45% of the SLTs who are employed within the public sector. Furthermore, Kathard & Pillay (2013) indicate that only 5% of practising SLTs are Black South Africans, whilst the remaining 95% speak primarily English and/or Afrikaans. Collaboration between different communicative partners in the home and community is often limited as a result of the mismatch between the languages spoken by the family and the SLT who is providing the intervention (Kathard & Pillay, 2013; Samuels et al., 2012). Given the emphasis on early intervention and the amount of research which supports early intervention compared to intervention at a later stage (Faja & Dawson, 2006), it is clear that the current model of clinician-based intervention is ineffective within a context such as South Africa. Consequently there is increasing interest in utilizing community and family-based intervention models in the South African context to address some of the access barriers outlined above (Pascoe & Norman, 2011; Samuels et al., 2012).

1.2. Delineating the research problem:

It is now widely recognized that understanding the context within which an intervention is implemented, is as important as maintaining the core targets of the intervention itself (Craig et al., 2013). Studies have shown that naturalistic interventions, such as EMT, can be adapted and yet remain effective in different environments. Furthermore evidence indicates that non-specialist communicative partners can be trained as effective interventionists (Bello-Mojeed & Bakare, 2013; Peredo, Zelaya, & Kaiser, 2018; Wright & Kaiser, 2016). Previous studies from high-income countries have found that parent-implemented interventions with children with developmental disabilities are effective, showing increased comprehension of vocabulary, increased use of vocabulary and increased grammatical complexity. Literature indicates that caregivers gain competence and confidence by being active participants in their children's communicative intervention (Dunst, 2002; Guralnick, 2011, 2017). Evidence also

indicates that therapist plus parent-led interventions showed greater spoken language outcomes than therapist-only or parent-only interventions (Hampton, Kaiser, & Fuller, 2015; Roberts & Kaiser, 2012).

The use of naturalistic interventions may therefore be an effective method of providing sustainable intervention in low-resource communities, as they allow for a systematic transfer of skills from professionals to parents. Over time, parent-mediated intervention allows children to benefit from increased intervention dosage compared to traditional clinician-led intervention approaches (Shire et al., 2015). Organizations such as the World Health Organization (WHO) and the International Association for the Scientific Study of Intellectual and Developmental Disabilities (IASSID) have recognized the importance of developing and adapting parent interventions for implementation in low- to middle income countries as a way to bridge the developmental disabilities treatment gap (Emerson, 2014).

The availability of research focusing on the effectiveness of interventions within low-to middle-income countries such as South Africa is limited. It remains challenging to evaluate the success of implementing and adapting complex interventions to novel contexts (Craig et al., 2013, 2019). This is due to the variability in outcomes, as well as various behaviours which influence both the therapists conducting the interventions and children receiving the intervention (Craig et al., 2013). It has been established that Enhanced Milieu Teaching (EMT) can improve the expressive language development of children with ASD and other developmental disabilities in South Africa (Hampton, Harty, Fuller, & Kaiser, 2019). This study found that EMT can be implemented to fidelity in a special school context. However, there is limited data available to indicate stakeholder perceptions of the acceptability of naturalistic intervention programs (such as EMT) within a linguistically and culturally diverse context such as South Africa. The field of implementation science indicates that stakeholder views on the acceptability and appropriateness of interventions are pivotal for long-term implementation success (Damschroder et al., 2009). The primary research aim for this study was therefore to determine bilingual parents' and Speech-Language Therapists' perceptions regarding the acceptability and appropriateness of implementing EMT with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans or isiXhosa at home.

1.3. Overview of this dissertation:

This dissertation comprises five chapters. In this first chapter the research question is contextualized and delineated. Key terms are defined and abbreviations used throughout the dissertation are presented.

The second chapter of the dissertation will review the literature related to the research topic. The review will highlight the importance of accessing and sustaining early intervention services, especially for children with developmental disabilities. Financial implications, characteristics of children with developmental disabilities, and implications for families with children with developmental disabilities across the lifespan will be discussed. Implementation science will be explored as a systematic way to address the established research-to-practice gap in delivering interventions which are culturally and linguistically appropriate in diverse contexts such as South Africa (Damschroder et al., 2009). The applicability of EMT in South Africa will be explored in accordance with implementation research, with a focus on the importance of stakeholder perspectives regarding both the core and peripheral components of EMT. The literature review will also describe the use of implementation science within the field of health sciences, as well as document some of the challenges experienced with intervention adaptations across diverse cultural and/or linguistic groups. The literature review will also introduce naturalistic developmental behavioural interventions (NDBI's) as an effective approach in targeting language development in children with developmental disabilities. One such NDBI, Enhanced Milieu Teaching (EMT), will then be introduced as the intervention explored within this study. The literature regarding EMT effectiveness across diverse socio-economic settings and diagnoses will be presented, as well as the potential benefit of utilizing EMT in a context such as South Africa.

The third chapter of this dissertation will outline the chosen frameworks and methodology incorporated in the study. The two stakeholder groups who were recruited for participation, namely bilingual parents and SLTs, will be described. The sampling methods selected, as well as the inclusion and exclusion criteria for participation in this study will be presented. The respective methods for data collection in this study namely, focus group discussions and semi-structured interviews, will be outlined. Data collection procedures, data analysis and research rigour will be detailed, and an overview of ethical considerations incorporated in this study will be provided.

The chosen framework used during the data analysis phase of this study will be described in conjunction with the rationale for the use of an existing framework in the reporting of this study's results.

The fourth chapter of this dissertation will present and discuss the study findings. Both parent and professional stakeholder views will be addressed within this chapter and supporting literature will be provided when discussing the research findings. Participants' perceptions regarding the appropriateness of the core components of EMT will be provided. Potential adaptations, identified as subthemes, will be grouped into the four sources of adaptations as outlined in the adaptome framework (Chambers & Norton, 2016), and therefore the sub-themes of each source will be explored individually. Excerpts from bilingual parents and SLT stakeholder perspectives will be provided to explore each identified subtheme in more detail. This chapter will conclude with a summary of the key findings obtained from bilingual parents and SLTs in this study, as well as their overall perception of EMT's applicability in a context such as South Africa.

This final chapter of this dissertation will synthesize key findings from the perceptions of bilingual parents and SLTs regarding the applicability of EMT for young children with developmental disabilities in multilingual and/or multicultural contexts such as South Africa. The strengths and limitations of this study will be presented, and recommendations for future research will be provided. The adaptations which arose from the data will also be summarized in this chapter before concluding this dissertation.

1.4. Definition of key terms:

In order to facilitate better orientation of terms used in this study, key terms and concepts used will be outlined in the table below:

Table 1: Definitions of key terms used in this study:

Acceptability	How satisfactory an intervention would be in diverse service settings (Olswang & Prelock, 2015).
Appropriateness	How fitting an intervention is for a particular population (Lewis, Weiner, Stanick, & Fischer, 2015).
Bi-/Multilingualism	Bi-/Multilingual persons are able to comprehend and/or produce two or more languages in written, oral and/or manual form (Mcleod et al., 2017). In this dissertation, the term(s) bilingual/bilingualism refer to the ability to understand and/or speak *two or more* languages.
Enhanced Milieu Teaching	Naturalistic model of early communication intervention, focused on child interests and everyday occurring, play-based activities (Kaiser, Roberts, & Balkom, 2013)
Fidelity	Examines the degree to which individuals are able to competently implement an intervention as is was designed (Olswang & Prelock, 2015)
Applicability (Fit)	Relates to how well an intervention is matched to the existing values, norms, goals and working environment of the proposed context (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004).
Implementation/ Implementation Science	Has developed as a method to bridge the gap between efficacy research conducted in controlled clinical settings, and effectiveness research within natural, applied settings (Olswang & Prelock, 2015)

Intervention adaptations	Refers to the modification of the content of an intervention to accommodate the needs of an identified population (Castro, Barrera, & Martinez, 2004)
Naturalistic developmental behavioural interventions	Naturalistic Developmental Behavioural Interventions (NDBIs) are implemented in naturally-occurring environments and incorporate a variety of behavioural elements to teach skills to facilitate language growth and development (Schreibman et al., 2015).
Stakeholders	Any individual or group who may be affected by the intervention or the adaptation thereof (Stahmer, Brookman-Frazee, Lee, Searcy, & Reed, 2011)

1.5. Abbreviations used in the study:

The following abbreviations pertain to terms and concepts referred to within this dissertation:

DD: Developmental Disabilities

EMT: Enhanced Milieu Teaching

NDBIs: Naturalistic Developmental Behavioural Interventions

SLTs: Speech-Language Therapists

1.6. Summary:

This chapter briefly introduced and contextualized the research problem. The content of the chapters of this dissertation was outlined and the key terms that were used throughout the dissertation were defined.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction:

This chapter of the dissertation will provide an overview of literature relevant to the research topic. This study pertained to the applicability (fit) of naturalistic communication interventions within multilingual and/or multicultural populations across diverse service settings. Building upon previous studies, consideration towards context within service delivery is of utmost importance (Guler, de Vries, Seris, Shabalala, & Franz, 2017). Additionally, language can be viewed as a cultural phenomenon (Mdlalo, Flack, & Joubert, 2016), indicating that considerations towards diverse contexts, populations, languages and cultures is required when investigating issues of applicability (fit). The sections below will explore these considerations in relation to the research topic. The need for early intervention, as well as characteristics of children with developmental disabilities will be presented. The structure of the South African service delivery setting will be explored, as well key considerations of intervention implementation in the South African service setting, according to the field of implementation science. The chosen naturalistic intervention approach will then be presented. The chapter will conclude with an exploration of the specific intervention chosen for this dissertation, Enhanced Milieu Teaching (EMT), as a potentially beneficial expressive language intervention for children with developmental disabilities in a multilinguistic and/or multicultural context such as South Africa. The relationship between all the factors considered within this literature review is outlined below.

2.2. Considering burden: The prevalence and implications of developmental disabilities

One of the leading mental-health related causes that contribute to the global burden of disease in children under 10 years of age is developmental disability (Bello-mojeed & Bakare, 2013). The United Nation's Sustainable Development Goals (SDGs) for low- to middle-income countries (LMIC's) such as South Africa from 2015 to 2030 place emphasis on the health, education and psychosocial development of children under 5 years of age. This is a result of previous literature indicating that 250 million children are at risk for developmental delays, and that 80.8 million children between the ages of 3 and 4 presented with delays in cognitive or socioemotional development

(Olusanya et al., 2016). In 2016, it was found that 53.0 million children were diagnosed with developmental disabilities, of which 50.2 million (94%) lived in low-to middle-income countries (Olusanya et al., 2016). The same article reports a 71.3% increase in children with developmental disabilities in Sub-Saharan Africa between 1990 and 2006. In comparison, southeast Asia, east Asia and Oceania had the largest decline in child disability during the same time period (34.5% decline). Sub-Saharan Africa also presented with the highest increase in total number of years lived with a disability (YLD= 91.1%) in this study (Olusanya et al., 2018).

In 2011, it was found that 2 870 130 individuals were diagnosed with a disability in South Africa, which indicates a prevalence rate of 7.5% (Statistics South Africa, 2011). With decreased mortality rates in children under five years of age, there is an increased number of children who may survive and subsequently experience neurodevelopmental disorders. Families in resource-limited countries, such as South Africa, experience an increased financial burden, as well as an increased burden of care, for children with developmental disorders (Bello-Mojeed & Bakare, 2013). As an example, UNICEF reported that 98,639 South African children received the Care Dependency Grant (CDG) for children between the age of one and eighteen who have severe disabilities and require permanent care from a caregiver (UNICEF South Africa, 2007). An additional study has indicated that persons with developmental disabilities could face an estimated 26% loss of adult income per year (Olusanya et al., 2018).

Societal burdens across the lifespan of an individual with a developmental disability has been investigated in low-to middle income countries such as India. It was found that India's inaction to decrease growth faltering has resulted in an estimated $176.8 – 616.5 billion expenditure, twice the amount currently spent on health intervention (Richter et al., 2018). In contrast, the quality provision of early intervention services for children with ASD have been found to have a $280 000 saving by the time these individuals were 22 years of age (Stahmer et al., 2011). Given these international cost estimates, as well the increase in developmental disabilities in Sub-Saharan Africa, the importance of early intervention for children with developmental disabilities is paramount. The provision of sustained early intervention services may not only lessen the financial burden on families, but also improve the child's level of participation across the lifespan (Taheri, Perry, & Minnes, 2017).

2.3. Considering need: The importance of early intervention for children with developmental disabilities and their families

Literature pertaining to developmental disabilities has evolved to include not only characteristics of the disability itself, but also the factors which could influence the individual's participation in society (Taheri et al., 2017). Children with developmental disabilities show deficits in all areas of development, including developmental language disorders (Charman et al., 1998 in (Ventola et al., 2007). Additionally, children with developmental disabilities often present with co-morbidities such as challenging behaviours and anxiety (Taheri et al., 2017). Children with developmental disabilities have also been found to present with lower adaptive skills, leading to decreased participation and social interactions (Taheri et al., 2017). Studies have found that children with developmental disabilities show additional impairments in the areas of social communication, including joint attention skills, interest in other children and the ability to point to objects (Ventola et al., 2007).

Developmental models highlight the importance of early experience and greater malleability in early childhood development in support of early intervention services for at-risk children and their families (Guralnick, 2011). Children with developmental disabilities could fall within various diagnostic categories, including developmental delay, autism spectrum disorder, and physical disabilities such as cerebral palsy. Along with the variation in diagnostic categories, children with developmental disabilities present with marked variations in presenting characteristics as well as complex, diverse family dynamics (Guralnick, 2011). The hierarchical nature of child development, along with an understanding of the various interconnected subsystems involved in developmental growth, indicate that children use developmental resources to support the development of other competencies (Guralnick, 2011). Given the intricate interaction between these various subsystems in child development, it is clear that comprehensive early intervention programs can enhance developmental influences on child outcomes across all affected areas of development (Guralnick, 2017).

A study conducted by Ventola et al., (2007) found that language skills of children with developmental disabilities such as ASD show significant difficulty in the areas of verbal communication. It has also been reported that children with developmental disabilities may lack knowledge of social events that typically-developing children use to support

emerging language skills and develop advanced linguistic structures (Thunberg, 2013). Children with developmental disabilities have also been found to present with delayed development of play skills (Thunberg, 2013). Numerous studies have shown the benefits of early intervention in this population, including increased motor, cognitive, communicative and social skills, as well as decreased atypical behaviours (Roberts, Kaiser, Wolfe, Bryant, Spidalieri, et al., 2014; Samuels et al., 2012; Vermoter & Town, 2008). It has also been found that enhancing the developmental influences of children with developmental disabilities has direct benefits on social and cognitive competence (Guralnick, 2017)

In neurotypical infancy, there is rapid development in the areas of cognition, language and social interaction, with some early pragmatic skills such as preferences for social stimuli already present at, or shortly after, birth. These early pragmatic skills lay the foundation for the development of other social interaction and language skills. Skills such as mutual gaze, social engagement, joint attention skills and the use of gestures typically develop within the first 12 months of life (Bradshaw, Steiner, Gengoux, & Koegel, 2015). Pragmatic skills, including abilities such as joint attention, turn-taking and eye contact are established before the development of verbal language (Lazenby et al., 2016)

The presence of pre-linguistic skills such as these may moderate the relationship between early intervention services and long term language outcomes (Pickard & Ingersoll, 2015). This is due to the research base supporting experience-dependent neuroplasticity theories (Landa, 2007) in infancy and early childhood across all areas of development, including language. Early intervention therefore has clear implications for future development of both language, academic and social interaction skills, and it is postulated that early intervention minimizes some of the social interaction and linguistic gaps found within children with developmental disabilities (Bradshaw, Steiner, Gengoux, & Koegel, 2015; Guralnick, 2016).

The presence of developmental disabilities negatively influences a child's participation across all levels of development (Guralnick, 2017). Recent research has indicated a strong need for effective early intervention services across diverse community settings where families can benefit from these services (Stahmer et al., 2011). There is strong support for the use of an integrated and naturalistic approach to language learning within the developmental disabilities population (Dunst, Trivette & Raab, 2014). The

generalization of targets in naturalistic settings to support the development of pragmatic skills is especially important, as these skills form the foundation of verbal language acquisition (Bradshaw et al., 2015).

The overarching aim of health is to provide input into human capital, which in turn develops competencies and knowledge to produce a productive member of society (Stabile & Allin, 2012). The effectiveness of early-intervention services, as well as the decreased financial and societal burden mentioned above, support the benefit of early intervention services across individual, family, educational and organizational contexts. However, in South Africa, there are a multitude of barriers to accessing early intervention services. As a results, the availability of early intervention services for children with established developmental disabilities is mostly limited to monthly multidisciplinary consultations (Kyarkanaye et al., 2017). The following section will provide an overview of literature related to these diverse barriers affecting access and implementation of interventions in a context such as South Africa.

2.4. Considering research: Complex interventions and the research-to-practice gap

Within the health services sector, complex interventions comprising multiple interactive components, are frequently used (Craig et al., 2013). One of the main reasons to evaluate complex interventions is to establish whether the intervention works effectively in everyday practical settings. In order to establish effectiveness, all factors relating to an intervention, the range of effects of these factors and how these effects change across service settings and over time are required (Craig et al., 2019). In order to achieve this, strict evaluation of complex interventions is recommended, in order to optimize interventions for appropriate use across different populations (Craig et al., 2013). However, in addition to the variability of outcomes associated with complex interventions, as well as the practical and methodological difficulties in evaluating complex interventions, standardizing the delivery of complex intervention, as well as organizational and logistical difficulties in applying these interventions, are widely reported (Craig et al., 2019b).The primary reason for this stringent evaluation process is to establish the degree to which implemented complex interventions are effective, or can be adapted, whilst still being able to assess the fidelity of the implemented intervention and accompanying outcomes (Craig et al., 2013).

The Medical Research Council (MRC) addressed the evaluation process by publishing a revised framework in 2013 (Craig et al., 2013). The framework is used to evaluate and optimize the development of complex interventions, calling for a revision of previous guidelines on the systematic development of interventions in specific phases, where stringent evaluations were required at each phase (Craig et al., 2013). Previous literature states that best practice requires the systematic development of interventions, using the best appropriate theory and available evidence to test each phase of intervention development (Craig et al., 2013). The framework required that existing evidence be analysed in order to establish whether the intervention can be expected to have a significant effect, and to what degree the complex intervention could be feasible. The framework further outlines that complex interventions should be evaluated for effectiveness, which intervention outcomes would need to be prioritized, the degree to which these outcomes are measurable, as well as to explore the processes relating to successful implementation of the intervention (Craig et al., 2013). The revised framework highlights the importance of context when evaluating the potential effectiveness and feasibility of a complex intervention (Craig et al., 2019b). The intervention should also be distributed across a wide variety of contexts, with ongoing research to monitor the process of complex intervention implementation.

In practice, this framework continues to pose several challenges, specifically when working with individuals who may not progress in a linear, phased way (Craig et al., 2013). Therefore, it has been found that early consideration of whether an intervention could be used as is proposed, who would be able to utilize the intervention, and where the intervention would be conducted is necessary to support sustained intervention implementation in future. During the evaluation of complex interventions, the way in which a complex intervention is implemented may provide valuable insights regarding why interventions fail or succeed across a variety of service settings (Craig et al., 2013).

It has previously been found that evidence-based practices, although proven to be efficacious, are not always successfully implemented within diverse community settings (Stahmer et al., 2011). Studies have reported that caregivers struggle to interact with the health care system, resulting in delayed treatment (Mitchell & Holdt, 2014) and limited support from service providers (Du Toit & Kok, 1999; Olivier & Hing, 2009). It has also been found that caregivers felt offended by service providers in the

presence of issues such as language barriers and/or cultural insensitivity. Apart from challenges experienced by caregivers, professionals also face challenges when attempting to put research into practice. Speech-Language Therapists (SLT's) have previously reported scepticism regarding the relevance of research results to individual patient needs, as well as difficulties in interpreting clinical results for practical implementations, and concerns regarding the focus of clinical research studies (Olswang & Prelock, 2015). This has an adverse effect on caregiver participation in intervention programs, and continues to affect skills transfer between clinical and home settings (Guler et al., 2017). As a result, an estimated two-thirds of proven interventions will fail to translate into meaningful results across diverse contexts (Damschroder et al., 2009).

2.5. Considering diverse populations: adaptations within linguistically and culturally diverse populations

The development of new interventions relies on the available evidence base and theory, as well as the ability to assess fidelity across cultural and linguistic borders. However, in the South African context, given the scarcity of comparable evidence regarding the communicative development, cultural norms, and success of interventions across culturally and linguistically diverse groups (Haman et al., 2017; Mcleod et al., 2017), studies have focused more on the adaptation of available interventions than developing new complex interventions. There are three primary reasons to adapt interventions across cultures, including allowing a person to participate in their home language, to establish equivalence across all cultures, and to minimize the cost of constructing new materials (Hambleton & Kanjee, 1995).

Different cultural and linguistic groups may interpret the meanings of items included in interventions differently, due to differences in the learning patterns of African and Western cultures (Castro et al., 2004). Additionally, interventions which are used in the absence of culturally specific materials developed for the South African population, may result in culturally-blind, and therefore ineffective, linguistic and cultural intervention adaptation (Castro et al., 2004). There are a multitude of steps involved in the adaptation of interventions in order to achieve a balance between equivalence and cultural applicability. The adaptations need to be both linguistically equivalent, where meaning and format remain intact, as well as conceptually equivalent, where relevant

daily-life experiences across different populations are considered (Pascoe & McLeod, 2016).

There is a global call for capacity building within childhood mental and developmental health (Stahmer et al., 2011). Therefore, in order to adapt interventions successfully, the current needs of the population, along with the relevance of various available interventions to the population and agency capacity to implement these interventions, needs to be established (Poulsen et al., 2010). Different communication needs, lexical development, and cultural norms need to be documented (Potgieter & Southwood, 2016), where the active participation of a multicultural and multilingual population may support increased ownership of the intervention being adapted (Castro et al., 2004). Successful intervention in a resource-limited context such as South Africa would therefore need to be sustainable, affordable and versatile for all stakeholders involved in to support sustained implementation of intervention targets and generalization of skills (Alant, 2005).

2.6. Considering practice: Implementation science and bridging the research-to-practice gap

Implementation science has developed as a method to bridge the gap between efficacy research conducted in controlled clinical settings, and effectiveness research conducted within natural, applied settings (Olswang & Prelock, 2015). In order to address this research gap and improve outcomes for patients, the accurate implementation of proven, effective interventions is required (Lieberman-betz, 2015). Implementation and intervention fidelity refer to the use of key elements of an evidence-based intervention in the way it was designed in order to achieve effective outcomes (Dunst et al., 2013). As such, implementation science considers all factors which could affect how successful an intervention is within a specific context by identifying barriers and solutions within each context to improve sustained intervention implementation (Olswang & Prelock, 2015).

Implementation science considers factors such as intervention *efficacy* which is the degree to which an intervention is appropriate and reasonable (Kazdin, 1981). *Fidelity*, which examines the degree to which individuals are able to competently implement an intervention as is was designed, is also addressed. Stakeholder perspectives regarding how satisfactory an intervention would be in their service settings are

considered to establish the *acceptability* of an intervention (Olswang & Prelock, 2015). Additionally, the *appropriateness* of an intervention is considered as this relates to how fitting an intervention is for a particular population (Lewis et al., 2015). Six broad categories of strategies are outlined within implementation research, addressing both grassroots-level ("bottom-up") and organizational ("top-down") level changes when considering an intervention and possible adaptations to the intervention. Firstly, at a grassroots-level, *exploration strategies* aim to gather information from various stakeholders to identify potential barriers and facilitators in implementing an intervention. Next, *educating strategies* relate to the development of materials and fidelity measures for the proposed intervention, as well as the training of individuals in the intervention. The remaining four strategies, *financing, restructuring, managing quality* and *attending to policy* are focused on organizational-level, top-down adoption of a proposed intervention (Lewis et al., 2015).

By considering the effect of these factors and strategies within a specific population or service setting context, it is possible to address barriers in both the dissemination and implementation of intervention across diverse service settings. *Dissemination* refers to the focused distribution of intervention information to specific audiences in order to support knowledge and intervention transfers between settings (Chambers, 2010). Dissemination of effective and acceptable interventions support sustainable intervention *implementation,* which refers to the adoption of strategies in evidence-based healthcare to adapt interventions for specific settings (Chambers, 2010). Although a complex intervention may have multiple interactive components, an identification of the minimal set of key elements and additional components which could be altered is advised (Chambers et al., 2013).

Identifying core intervention components would support establishing the fidelity of an intervention, as well as maintaining implementation and intervention fidelity during the process of adaptation in order for the intervention to remain effective (Poulsen et al., 2010). A distinction can therefore be made between the *core components* of an intervention, which constitute the essential components of an intervention and should ideally not require adaptations and the *adaptable periphery* of an intervention. The *adaptable periphery* of an intervention encompasses all the structures, systems and adaptable elements which could be adapted across diverse service settings and service delivery levels (Damschroder et al., 2009). Examples of these peripheral

components could include the characteristics of the intervention itself, the outer setting of patient needs and resources, the inner setting of structural elements, culture and implementation climate, the characteristics of individuals and interventionists and the process of intervention implementation (Damschroder et al., 2009).

2.7. Considering structure: A description of the South African context

The socio-political context in South Africa has also seen significant changes since the end of Apartheid (Pascoe & Norman, 2011). Resources within the various sectors of health, welfare and education remain limited and unequally distributed between the private and public sectors (Kathard & Pillay, 2013). This limits the access that the majority of the diverse South African population has to professional health care services, including Speech-Language Therapy (Kathard & Pillay, 2013; Samuels et al., 2012). Additionally, communities are faced with significant access challenges in healthcare service provision due to factors such as lack of knowledge regarding early social and communication development milestones, poverty, and social stigma related to a child with a disability (Chambers et al., 2017).

Currently, there is a shortage of both specialized centres and qualified Speech-Language Therapists (SLTs) to provide intervention, especially within the public sector of South Africa. According to the 2013 general household survey, 87% of the population are unable to access private health care (Statistics South Africa, 2013). However, as over 50% of registered South African clinicians are employed in private practice (Kathard & Pillay, 2013), the onus of servicing over 85% of the population falls on less than half of the SLTs employed within the public sector. The mismatch between the homogeneity of the Speech-Language Therapy profession and the South African population's linguistic and cultural diversity (Pascoe & Norman, 2011). Research in Sub-Saharan Africa has indicated that the limited number of health professionals such as SLTs leads to an increased risk of burn-out amongst professionals (Bello-Mojeed & Bakare, 2013).

Limitations in accessing linguistically and culturally relevant services has also been documented internationally in previous literature. It has been found that as little as 20% of practicing Speech-Language Therapists in areas such as Australia offer services in a language other than English. In some areas, such as California, it was found that

42.6% of the population's home language was not English, and 59% of Speech-Language Therapists recorded at least one multilingual child on their caseload (Verdon et al., 2014). Due to the disparity between the predominantly homogeneous, monolingual Speech-Language Therapy profession and the diverse demographic of the populations we serve, the majority of Speech-Language Therapists provide interventions to multilingual children in a second language (Pascoe & Norman, 2011).

In an Australian study conducted by Williams & Mcleod, (2012), the majority of respondents reported using informal procedures, and assistance from other persons, in order to assess multilingual children's speech and language skills. In South Africa, a survey conducted by Mdlalo et al., (2016) found that the majority of SLTs in South Africa were from Afrikaans or English-speaking backgrounds. It was found that 89% of the SLT respondents in this survey had multilinguistic clients on their caseload, and 86% of SLTs reported using English resources to provide intervention to these clients (Mdlalo et al., 2016). This could lead to misinterpretations of information between SLTs and families, where SLTs may not be able to fully explain terminologies or pathologies equivalently across diverse linguistic and/or cultural groups (Chambers et al., 2017). The limited resources available to this at-risk population in the post-apartheid South African context is of primary concern (Pascoe & Norman, 2011).

The challenges of conducting interventions within a culturally and linguistically diverse population such as South Africa is evident (Maphalala et al., 2014). South Africa is classified as a multilingual country, with 11 official languages, additional indigenous languages and languages spoken by immigrants contributing to this diverse landscape (Dulm, 2013). Pascoe & McLeod (2016) report that, according to Statistics South Africa (2011), isiZulu (22.7%) is the most widely spoken language in South Africa, followed by isiXhosa (16.0%) and Afrikaans (13.5%).

SLTs expressed a need for information regarding both the cultural practices of multilingual children, and the syntactic structure of the child's first language. This would assist in moving away from individual, therapist-led intervention which was reported as the most common type of therapy currently used by participants in this study (Williams & Mcleod, 2012). Additionally, evidence shows that intervention with multilingual children is most effective when conducted in the home language (Mcleod et al., 2017). This highlights the need for information regarding aspects such as syntactical structure, vocabulary development, body language and use of gestures between

diverse linguistic and cultural groups. The provision of language intervention in South Africa has traditionally been considered the role of the Speech and Language Therapist. The majority of therapists are white, middle class, and speak English and/or Afrikaans as a home language (Barratt, Khoza-Shangase, & Msimang, 2012; Kathard & Pillay, 2013a). However according to the 2011 SA census data, isiZulu and isiXhosa are the most commonly spoken languages (22,7% and 16% respectively), followed by Afrikaans and English (13,5% and 9,6% respectively).

This mismatch between the cultural and linguistic background of most Speech-Language Therapists in South Africa, and the population which they are serving means that very few Speech-Language Therapists can provide intervention services in the languages spoken by most South Africans. The nature of Speech-Language Therapy provision in both monolingual and multilingual contexts is changing rapidly on a global level, and SLTs will need to match this multicultural and/or multilinguistic shift to provide equitable services to all (Dulm, 2013). Consequently there has been a move towards utilizing community and family-based intervention models to address some of the problems outlined above (Pascoe & Norman, 2011; Samuels et al., 2012). Increased social planning approaches ("top-down") and approaches to motivating local communities ("bottom-up") is required, as this will combine both scientific expert and community inputs in order to improve access to, and sustainability of, intervention services (Castro et al., 2004). Within a diverse context such as South Africa, changes to the surface structure of interventions, which relates to the appearance of role models such as SLT's, will be insufficient in addressing service delivery issues. Rather, changes to the deep structure of intervention provision, including considerations of cultural beliefs, core values, and diverse world views and lifestyles, may help to address the mismatch between available service delivery and diverse populations requiring intervention (Castro et al., 2004).

2.8. Considering stakeholders: Collaboration, adaptation and improving fit:

It is evident from previous studies that complex interventions, such as those required for children with developmental disabilities, cannot simply be adapted without collaboration from interventionists, therapists, members of different cultural and linguistic populations, and an understanding of variations in cultural and communicative norms across populations (Maul, 2015; Mcleod et al., 2017; Pascoe &

McLeod, 2016; Potgieter & Southwood, 2016). In light of this, there are clear challenges in developing interventions in a diverse context such as South Africa in the absence of these developmental, linguistic and/or cultural norms. Active participation from members of diverse communities and populations, and the Speech-Language Therapists (SLTs) who work in these contexts is of utmost importance in the development and adaptation of complex interventions to provide effective and appropriate interventions within the diverse South African context (Mcleod et al., 2017). It is therefore pivotal that all components of a complex intervention, as outlined previously, are evaluated and adapted in collaboration with multi-level stakeholders. This is required to establish whether the key strategies of an intervention could be applicable to everyday situations across diverse service settings (Haynes, 1999 in (Craig et al., 2013)), where *applicability* or *"fit"* relates to how well an intervention is matched to the existing values, norms, goals and working environment of the proposed context (Greenhalgh et al., 2004).

The process of achieving fit should be seen as a multi-level construct, where an intervention needs to align with multiple dimensions in order to be implemented successfully and sustainably (Chambers et al., 2013). Input from various stakeholders may provide insights regarding required intervention adaptations across diverse linguistic, cultural and/or service settings within a low- to middle income country such as South Africa, where "*stakeholder"* could be any individual or group who may be affected by the intervention or adaptation thereof (Stahmer et al., 2017). Adaptations to interventions are often required in order to improve the perceived fit of an intervention between individuals and diverse service settings, in line with implementation outcomes (Damschroder et al., 2009).

Key issues contributing to sustainability have therefore been located within the implementation phase of an intervention, where an assessment of the perceived "fit" between the context and the implemented intervention is central to achieving sustained implementation (Chambers et al., 2013). Previous findings support this, where a "voltage drop" could be expected as interventions move from clinical effectivity trials into practical implementation and the individual benefit of the intervention within a heterogeneous population decreases due to issues of "fit" (Chambers, Glasgow, & Stange, 2013). As an example, previous literature states that community-based interventions seldom provide the required intensity or type of intervention service that

is required to drive change and support ownership of sustained intervention efforts (Stahmer et al., 2011). Therefore, consensus between developers of interventions, therapists, researchers and the target populations who would receive the intervention is required before adaptations can be identified, accepted and widely implemented within multicultural and multilinguistic populations.

2.9. Considering effectiveness: Evidence-Based Naturalistic Developmental Behavioural Early Communication Interventions (NDBI's):

Children with developmental disabilities have long been known to respond to interventions that target specific skills and behaviours (National Research Council., 2001). Given the complex nature of developmental disabilities, along with the fact that more than one area of communicative development is affected, utilizing naturalistic interventions is becoming more common in interventions with children and families from this population.

Naturalistic Developmental Behavioural Interventions (NDBIs) are implemented in naturally-occurring environments and incorporate a variety of behavioural elements to teach skills to facilitate language growth and development (Schreibman, Dawson, Stahmer, Landa, Rogers, McGee, et al., 2015). There are numerous research studies demonstrating the effectiveness of NDBI's as an evidence-based intervention for children with developmental disabilities (Schreibman, Dawson, Stahmer, Landa, Rogers, McGee, et al., 2015). There are several interventions which fall under the NDBI umbrella, such as: Joint Attention Symbolic Play Engagement and Regulation (JASPER), Early Start Denver Model (ESMD), Enhanced Milieu Teaching (EMT), and Social Communication/Emotion Regulation/Transactional Support (SCERTS). Empirical data from these interventions have demonstrated improvement in the following areas: increased use of skills in settings other than the ones where teaching occurred (generalization), increased active engagement and use of spontaneous communication, and a decrease in problem behaviours (Colombi et al., 2015; Dawson et al., 2010; Goods, Ishijima, Chang, & Kasari, 2013; Kaiser & Roberts, 2013; O'Neill et al., 2010; Wright & Kaiser, 2016).

NDBIs are based upon the principles that children learn best when experiences are developmentally appropriate and when they are allowed to be active participants in the environment (Schreibman et al., 2015). Through the use of naturalistic environments,

previous studies have found that generalization of targets improved significantly (Carr & Kologinsky, 1983; McGee, Krantz, Mason, & McClannahan, 1983), and that targets were maintained after generalization (Thunberg, 2013). Furthermore it is documented that children were able to learn concepts more rapidly in natural environments than in arbitrary ones (Schreibman, Dawson, Stahmer, Landa, Rogers, McGee, et al., 2015). Developmental science has found that although some children follow an atypical language trajectory, many children with developmental disabilities follow similar trajectories compared to typically-developing children, albeit at a different rate. For example, early intervention services have shown that children with ASD could gain up to four additional points on a standardized language measure, and may gain up to six additional points when intervention is delivered through a clinician and parent together (Hampton & Kaiser, 2016). Intervention programmes can be home- or centre-based, but the importance of teaching in naturalistic environments is an important component of successful early intervention programmes; for instance when skills learnt at centre-based programmes are continually reinforced in the home environment (Schreibman et al., 2015; Vermoter & Town, 2008). Siller, Hutman & Sigman (2013) published the first longitudinal study showing that responsive parental behaviours positively affected long-term linguistic outcomes with children with ASD in 2002, indicating that the linguistic gains made during intervention in this population were permanent (Siller, Hutman, & Sigman, 2013).

Parental communication styles have been found to be more directive in children with developmental disabilities, in comparison to the responsive communication styles of parents with typically-developing children, and may affect both the quality and quantity of stimulation provided (Thunberg, 2013). To address this, NDBIs are also viewed as “family friendly”, where caregivers are able to implement targets within everyday family routines to improve both the quantity and quality of intervention to children with established disabilities (Dunst et al., 2006; Schreibman et al., 2015; Woods, Jeanne, Friedman, & Murch, 2011; Woods, Wilcox, Friedman, & Murch, 2011). Parents reported they felt better equipped to identify both the type and timing of a child’s communicative events during interaction (Allen & Marshall, 2011). Additionally, in studies where parents have been asked to rate the social validity of naturalistic interventions in developing country contexts (such as the USA), parents have typically

rated their experiences with the interventions as positive and have rated interventions as socially-valid (Ogilvie & McCrudden, 2017; Stahmer et al., 2017).

Studies have shown that functional communication outcomes can be supported through the use of strategies to facilitate generalization, such as incorporating multiple interventionists, teaching multiple examples of communicative forms, and embedding opportunities for communicative learning and use in various settings (Snell et al., 2010). Therefore, the inclusion of developmental principles in intervention with these populations becomes paramount (Schreibman, Dawson, Stahmer, Landa, Rogers, McGee, et al., 2015). One example of an NDBI which incorporates developmental principles is Enhanced Milieu Teaching (EMT), which will be explored below.

2.10. Considering applicability: Enhanced Milieu Teaching (EMT) as a naturalistic communication intervention in South Africa

Enhanced Milieu Teaching (EMT) incorporates trained role models to teach new language to children within functional, naturalistic contexts (Hampton & Kaiser, 2016). There is empirical support which demonstrates the effectiveness of EMT within various cultural and socio-economic groups, as well as with varying delays and disorders (Hancock & Kaiser, 2006) within a developed country context. EMT has been found to produce long-term results in both vocabulary growth and linguistic structure after a relatively short intervention period (Schreibman, Dawson, Stahmer, Landa, Rogers, McGee, et al., 2015). In a recent study by Peredo et al., (2018) it was found that EMT could be adapted successfully for Spanish-speaking families from low-income settings. Due to the diverse linguistic structure found in Spanish, as well as the marked variations in dialectal differences, the successful adaptation of EMT within this population is encouraging for researchers who wish to adapt EMT in other multilingual, low-to middle income contexts such as South Africa (Peredo, Zelaya, & Kaiser, 2018).

EMT comprises three subsections, and these include environmental arrangement to encourage the child to initiate or interact with the communicative partner; using natural reinforcement to respond to the child's utterances; and using milieu teaching techniques to scaffold the child's communicative attempts (Hampton & Kaiser, 2016; Hancock & Kaiser, 2006). As with many naturalistic developmental behavioural interventions, the core components of EMT are based on the principles of social learning theory and behaviourism (Schreibman et al., 2015). EMT teaches

communication in the natural environment using six key strategies: environmental arrangement, responsiveness, modelling target language, expanding communication, eliciting, and prompting communication (Kaiser & Hampton, 2016). EMT is based upon the premise that language can be taught to a child during social interactions, if the communicative partner is trained to initiate interaction and respond to a child's utterances in the correct way to facilitate language learning (Kaiser, Roberts, & Balkom, 2013; Kaiser & Wright, 2013). These core components of EMT can therefore be learnt and implemented within the various social settings a child may be located in (such as home and school settings). The peripheral components of an intervention can be adapted to suit the child within diverse social settings. In their adaptome framework, Chambers and Norton (2016) outline some peripheral intervention components such as the service setting of the intervention, the materials used across these settings, and the individuals identified to implement the intervention, as well as the characteristics of the target audience.

As children are active participants in EMT, social reciprocity is also facilitated during language learning opportunities, and the communicative partner is able to model behaviours for the child to incorporate when the opportunity arises. The communicative partner is then able to fade prompts over time, allowing the child to direct the interactions more functionally towards their communicative needs (Schreibman, Dawson, Stahmer, Landa, Rogers, McGee, et al., 2015; Wright & Kaisert, 2016). Studies have shown that functional communication outcomes can be supported through the use of strategies to facilitate generalization, such as incorporating multiple interventionists, teaching multiple examples of communicative forms, and embedding opportunities for communicative learning and use in various settings (Snell et al, 2010). Therefore, in order to support the generalization of vocabulary and everyday routines, collaboration with parents and communicative partners may play a pivotal role within this population. In lieu of the above, the frequency of services delivered to children with developmental disabilities could increase significantly through the use of collaborative, naturalistic communication interventions.

Research relating to the training of other communicative partners, such as parents, as interventionists found several specific aspects of parent behaviour which are linked to language development. In a study by Kaiser & Roberts (2013) parents were recruited to be communicative partners and received training in EMT. These include the amount

of parent-child interaction (Alston & St James-Roberts, 2005), responsiveness to a child's communicative attempts (Warren & Brady, 2007), the amount and quality of linguistic input (Weizman & Snow, 2001), and the use of language learning support strategies (Smith, Landry, & Swank, 2000). In a study by Kaiser & Roberts (2013) parents were recruited to be communicative partners and received training in EMT. The results indicated increased parental use of responsive interaction, expansions, language modelling and milieu teaching prompts in various play settings with their children at home, and these findings were present over a year after training had been completed.

Furthermore, the training of parents or caregivers as interventionists where professionals and resources are limited, provides the opportunity for culturally-sensitive interactions and intervention goals, which are functional within the family's context (Hampton & Kaiser, 2016; Samadi & Mcconkey, 2011). As parents play a critical role in a child's development, training parents as intervention partners may increase parental motivation (Crowe, Norris, & Hoffman, 2004) where trained parents' compliance with, and recasting of, children's communicative turns are increased (Fey, Yoder, Warren, & Bredin-oja, 2013). In lieu of the above, when parents are trained as interventionists, the frequency of intervention may be increased and, hopefully, maintained. As children with developmental disabilities struggle with generalization of skills, systematic teaching across communication partners and various communicative settings may support the development of expressive language skills (Hampton & Kaiser, 2016).

2.11. Considering teaching approaches: A consultative teach-model-coach model:

In order to train other communicative partners, such as SLT's or parents, a transactional model is incorporated, focusing on the transactional exchanges between adult and child to provide opportunities for language learning (Roberts, Kaiser, Wolfe, Bryant, & Spidalieri, 2014). Communicative partners such as parents or SLT's are trained to respond to these transactional exchanges, and to provide additional input at the child's language level. Additionally, communicative partners receive training in order to initiate transactional exchanges (Roberts et al., 2014). During training, four language support strategies are taught to communicative partners individually, namely

matched-turn responsiveness, expansions, prompting and time delays (Roberts et al., 2014). Communicative partners who receive EMT training are coached through each strategy and are provided with opportunities to test their competency of each strategy during supervised practice with their children. In this way, parents or SLT's receiving training are able to learn strategies in both structured environments and be able to test the use of these strategies into more novel activities at home and review these as training continues (Roberts et al., 2014). Fidelity levels are incorporated during training in order to monitor progress and ensure communicative partners are adequately trained to implement EMT strategies outside of the structured training environment (Roberts et al., 2014).

When conducting EMT with a child, procedures initially comprise an assessment of a child's spontaneous language, a caregiver checklist, as well as an assessment of a child's play skills development. Play provides insights into children's underlying symbolic constructs, which may not be measurable through other assessments (Thiemann-Bourque, Brady & Fleming, 2012), and as EMT incorporates play-based activities, observations regarding a child's level of play skills development is required. Naturalistic observations can be used to compile all available insights regarding the child's initial level of development. Naturalistic observation refers to a method of viewing children within structured or unstructured, naturally occurring environments to provide information on how a child engages and behaves in different developmental domains and activity settings, including play (Camaioni, Castelli, Longobardi & Volterra, 1991; Dunst, 2002; Trivette, Dunst & Hamby, 1996). These observations are then supported by complimentary checklists which are completed by the parents or caregivers in order to provide a more holistic representation of the child's overall communicative abilities (Bagnato, Neisworth & Pretti-Frontczak, 2010). This information is then used to implement the three subsections of EMT in training to professionals and/or caregivers in both clinical and home contexts. This information can also be used as baseline data, from which continued intervention and analysis of spoken language gains can be monitored over time (Roberts, Kaiser, Wolfe, Bryant, Spidalieri, et al., 2014).

2.12. Considering benefit: The potential benefit of EMT in South Africa:

EMT is an example of the consultative service delivery model as described by Moonsamy, (2015), where the therapist's role changes from direct interventionist to indirect collaborator. This model is appropriate within a resource-limited context such as South Africa, as it allows for efficient use of resources to promote children's spoken language development. This is due to the increased access to intervention which may be otherwise unaffordable to many families. EMT is sufficiently versatile and affordable, as it is can be taught in everyday routines and/or play-based activities, can be taught to an array of intervention partners, using available resources within each individual case. In addition, EMT has been implemented to fidelity in a South African special school context (Hampton, Harty, Fuller & Kaiser 2019). However, despite the available empirical evidence supporting the use of EMT, this approach has not been widely supported or implemented within the South African context. Additionally, there is a scarcity of literature regarding the success of interventions such as EMT within a culturally and linguistically diverse low- to middle-income country such as South Africa (Emerson, 2014; World Health Organization, 2010).

As EMT is based upon a consultative framework, it is possible to adapt the intervention to a multicultural and/or multilinguistic context such as South Africa. However, it is clear that consideration to both structural and cultural aspects of EMT acceptability and appropriateness would need to be obtained from various stakeholders, as community-based implementation of evidence-based practices has historically proven difficult within the health care field (Stahmer et al., 2011). Due to the versatility and affordability of EMT, it may be a particularly useful resource within the South African context; however, context-specific adaptations may be required to improve its appropriateness across different cultural and linguistic groups.

2.13. Summary:

Communication interventions with children with developmental disabilities are seen as complex interventions, where there is a degree of variability in outcomes, as well as various behaviours which influence both the therapists conducting the interventions and children receiving intervention (Craig et al., 2013). The complex nature of developmental disabilities, along with the complex nature of the interventions available

to this population has greatly impacted the ability of researchers to evaluate the success of adapting these interventions. It is now recognized that understanding the context within which an intervention is implemented, is as important as maintaining the core components of the intervention itself (Craig et al., 2013). Studies have shown that naturalistic interventions such as EMT can be adapted, and that non-specialist communicative partners can be trained as effective interventionists (Bello-Mojeed & Bakare, 2013). Furthermore, evidence states that natural intervention environments are critical in supporting language intervention (Kaiser et al., 2000; Kaiser & Roberts, 2011), especially with children with developmental disabilities. However, limited data is available as to the possibility of adapting naturalistic interventions such as EMT within a multicultural and multilinguistic context such as South Africa, or the success of implementing this adapted intervention with children with developmental disabilities. This chapter has provided an overview of the literature relevant to the research topic. Various considerations were presented in order to illustrate the complex nature of providing expressive language intervention for children with developmental disabilities who reside within multilinguistic or multicultural contexts. This chapter has also described the importance of including various stakeholders in the development and implementation of complex interventions, in order to improve the overall fit of an intervention across diverse service settings and support the sustained implementation of the intervention within a resource-limited context such as South Africa.

CHAPTER 3: METHODOLOGY

3.1. Introduction:

This chapter will describe the chosen research design for this study, along with the rationale for the chosen design and sampling methods used. The study was conducted using a qualitative research approach, combining both semi-structured interviews and focus group discussions in the research design. Participant demographics, inclusion and exclusion criteria for participation in this study, and data collection methods for both stakeholder groups will be discussed. This will be followed by a description of the data analysis procedures, specifically the use of both thematic analysis and an existing framework when analysing the data. The chapter will conclude by outlining how trustworthiness of the data was ensured, as well as how the ethical principles outlined within the Declaration of Helsinki were upheld. The research question, along with the aims and objectives of this research study, are set out below.

3.2. Research question and objectives:

The primary research question for this study was as follows:

What are stakeholder perceptions of implementing Enhanced Milieu Teaching (EMT) for young children with developmental disabilities who reside in the Western Cape and speak Afrikaans or isiXhosa at home?

To address the research question, the overarching aim of this study was defined as: establishing bilingual professional and parental perspectives regarding the acceptability and appropriateness of EMT intervention within a context such as South Africa.

The objectives required to address the aim and research question of this study were as follows:

- To determine the perceptions of bilingual parents of children with developmental disabilities regarding the acceptability and appropriateness of EMT goals, materials and strategies used within EMT
- To determine the perceptions of bilingual SLT's working with children with developmental disabilities regarding the acceptability and appropriateness of EMT goals, materials and strategies within multilinguistic and/or multicultural private and public service settings in South Africa

- To determine professional and parent perspectives regarding the applicability (fit) of EMT intervention and its core components
- To identify potential adaptations which would be required to enhance EMT applicability (fit) in a multilinguistic context such as South Africa

3.3. Research framework and design:

Ontology is concerned with questions regarding how reality is perceived, and about knowing what one believes (Collins & Hussey, 2009). Within an ontological assumption, objectivism and subjectivism paradigms exist, where objectivism is defined as the position that social entities are able to exist in reality externally from social factors concerned with the entities' existence (Saunders, Lewis & Thornhill., 2009). Subjectivism refers to the social phenomena that is created as a result of the perceptions and actions of the social actors who are concerned with their existence (Saunders, Lewis & Thornhill., 2009). There are also two additional viewpoints within the ontological assumption, namely a realist viewpoint and a nominalist viewpoint. A realist viewpoint states that reality is objective and external from the researcher, and therefore only one reality can exist. The nominalist viewpoint, incorporating an interpretivist stance, states that social reality is subjective as it is socially constructed and therefore each individual could have their own sense of reality, along with various factors which influence these multiple realities (Collis & Hussey, 2009).

Epistemology is concerned with how we are able to know that knowledge is valid, and therefore investigates the relationship between the researcher and the topic being researched (Collins & Hussey, 2009). Within epistemology, there is also a realist and nominalist viewpoint, where the nominalist perspective supports the researcher having a close relationship, and interacting with, the research being conducted (Collins & Hussey, 2009).

In this study, a subjective paradigm along with a nominalist viewpoint were chosen to inform the ontology and epistemology of the research as this best describes the subjective nature of the participants and their contexts in relation to the applicability of the EMT intervention. All of the participants within this study had experience with children with developmental disabilities and had therefore developed their own perspectives regarding intervention with children with developmental disabilities in a multicultural and multilingual context such as South Africa. These perspectives may

have been influenced by interactions with others as well as cultural factors, and may therefore vary between individuals (Creswell, 2013).

A descriptive exploratory qualitative approach was used in this study. Two qualitative research methods, namely semi-structured interviews and focus group discussions were used to gather data for this study. Creswell (2003) states that this design allows the researcher to explore a specific topic of interest (such as a naturalistic communication intervention) within a specific context (such as the clinical/home service setting). The researcher was therefore able to explore factors regarding the applicability of EMT within the South African context as expressed by the participants themselves.

Descriptive data was obtained through the use of both semi-structured interviews and focus group discussions, as this allowed the researcher to achieve detailed descriptions from various stakeholders (Creswell, 1994). This research design further allowed the researcher to interpret these factors from within the bilingual parents and SLT participants' communities. The researcher acknowledges that there are limitations to descriptive qualitative research methodologies, including possible bias from participants (Saunders, Lewis & Thornhill., 2009) and due to the subjective nature of participant views, qualitative research is predominantly interpretive (Creswell, 1994).

In order to obtain holistic stakeholder data to address the research aim, methodological triangulation was incorporated and both interviews and focus group discussions were chosen as data collection methods. Cooper & Schindler (2008) suggest that interviews are an appropriate method of data collection within exploratory research, allowing the researcher to probe an interviewee in order to build upon their responses. In addition, focus groups have gained popularity in areas where limited research exists (Willis, Green, Daly, Williamson & Bandyopadhyay, 2009). Focus groups allow the researcher an opportunity to obtain the perspectives of a homogenous group of people in a non-threatening, conversation-enhancing environment which supports participants' self-disclosure (Krueger & Casey, 2009). Conducting both semi-structured interviews with bilingual SLT's, and focus group discussions with bilingual parents of children with developmental disabilities provided the researcher with valuable insights to the attitudes, beliefs and perceptions of parents and SLT's regarding EMT intervention, as well as the factors that influence these perceptions (Willis et al., 2009).

Limitations of focus group discussions include participants feeling biased towards the researcher or research settings (Saunders, Lewis & Thornhill., 2009). Additionally,

Silverman (2007) cautions the researcher regarding how questions are framed within interviews, as this may affect the data collected. Specific measures incorporated during this study to minimize any potential bias, as well as the ethical considerations relevant to this study, will be described later on in this chapter.

3.4. Positionality of the researcher:

The researcher in this study is a bilingual Speech-Language Therapist with a keen interest in working with children with ASD and other developmental disorders. The researcher is the eldest of two siblings, where her younger sibling is an adult with ASD. As a child, this sibling was diagnosed with ASD as well as Landau Kleffner Syndrome, an expressive aphasia. He received intensive Occupational and Speech Therapy intervention in early childhood and became verbal at the age of 7 years. He preferred to converse in English throughout childhood and adolescence, although in adulthood is able to converse in both Afrikaans and English with equal proficiency.

The researcher was therefore exposed to allied health interventions from a young age, and upon completion of her undergraduate degree in Speech-, Language & Hearing Therapy, her passion in working with minimally-verbal children and families in both the public and private health care sectors has continued to grow. The challenges faced by families, both her own and those on her caseload, prompted the researcher to further her research and expertise by exploring naturalistic intervention services available to families of children with developmental disabilities within the Western Cape. This led to a research assistant position within a proof of concept study which determined the effectiveness of EMT in increasing spontaneous communication with children with Autism Spectrum Disorder (ASD), and ultimately led to the formulation of this research study. It is the hope of the researcher that this study will inform and expand the literature regarding the perceived fit of naturalistic interventions to support the expressive language development of multilingual children with developmental disabilities and their families living in low- to middle-income countries such as South Africa.

3.5. Participant selection and description:

3.5.1. Sampling

In this study, bilingual Speech-Language Therapists with experience in working with children with developmental disabilities, as well as bilingual parents with children with developmental disabilities were chosen as the population for this study.

Purposive convenience sampling was used to identify potential participants for the semi-structured interviews, as this allowed the researcher to represent the perceptions of a certain population of SLT's (Neuman, 2006). Given that the student researcher studied in the Western Cape and has been employed in the province since the completion of her community service year, the student researcher used her existing social networks to identify and contact SLT's who had studied with her, or were currently practicing in the surrounding areas.

Non-probability sampling was used to identify potential participants for the focus group discussions, where the researcher approached parents of children in two schools for children with developmental disabilities. Self-selection sampling was used as this allowed individuals to indicate their desire to participate in the research (Saunders, Lewis & Thornhill, 2009).

3.5.2. Participants for semi-structured interviews

The participants for the semi-structured interviews were all bilingual Speech-Language Therapists, who had experience in working with multilingual and/or multicultural children with developmental disabilities. Participants from both the private and public service sectors were contacted through purposive convenience sampling for possible inclusion in this study.

Inclusion criteria for the bilingual SLT's were as follows:

- Participants must have either Afrikaans or isiXhosa as their first language
- Participants must have worked with families and children with ASD or other developmental disabilities in English/Afrikaans and/or English/isiXhosa for a minimum of three years in order to have sufficient experience to base their perceptions on

Potential SLT participants were excluded if they reported any previous exposure and/or training in naturalistic developmental behavioural interventions, such as EMT.

Potential participants for this part of the study were identified and contacted via email. The nature of the study, as well as the requirements of the study, were explained within an information letter attached to the initial email (see Appendix 1). A total of seven (7) Speech-Language Therapists were initially contacted, and the information letter was

also distributed to a public sector forum by one of the potential participants. A total of seven (7) SLT's responded via email, of which two declined or did not meet the inclusion criteria. Five (5) SLT's indicated their interest in the study and provided permission for follow up contact and consent forms from the researchers. Written consent was obtained (Appendix 2) from all five SLT's, a time and location were established as per each participant's preference.

3.5.3. Participants for focus group discussions

Two (2) schools were identified through purposive convenience sampling for possible parent recruitment to participate in the focus group discussions. The researcher initially met with the principal of each school to explain the outline of the study and obtain permission to send out information letters to parents of pupils in both schools (see Appendix 3). *School A* in Durbanville was identified to recruit bilingual English/Afrikaans speaking families, and *School B* in Rondebosch East was identified to recruit bilingual English/isiXhosa speaking families.

After written consent was obtained from both school principals, *School B* assigned a personnel member to assist with the identification of potential participants. *School B* identified eight to ten families to be contacted by the researcher, whereas *School A* requested that letters be sent to all learners within the school. It was felt that all families should be made aware of the study and contact the researcher directly if further information was required. No further involvement was required from any school personnel after handing the signed information letters to the researchers.

Information letters were provided to each participant prior to the start of the data collection to outline the nature of the study and highlight that participation would be entirely voluntary. Participants were also informed that participation could be halted at any time during the study, with no adverse effects towards themselves or their children.

After the introductory letter had been sent to potential participants, non-probability self-selection sampling was used to identify interested participants. A total of forty (40) information letters were sent out to families of children between both schools, and a total of 17 signed forms were returned. Four parents indicated that they did not wish to participate in the study, while thirteen parents indicated they were interested and gave permission to be contacted directly by the researchers. These parents were all contacted telephonically and/or via email to explain the study and requirements in further detail, and to obtain consent for participation in this study.

Inclusion criteria for the parent focus groups included:

- Participants had to have at least one child who has received a formal diagnosis of ASD or a developmental disorder by a Paediatric Neurologist or Educational Psychologist OR have a child who has been given placement at a special needs school for developmental disabilities
- Participants must converse with their child on a daily basis in either English/Afrikaans or English/isiXhosa
- Participants must possess a basic proficiency in reading and speaking English as a second language

Participants who had received any form of EMT intervention or training prior to this study were excluded from participation. No other exclusion criteria for the focus group discussions were identified.

3.5.4. Participant demographics

A total of 5 bilingual SLT's participated in the semi-structured interviews. Three of the bilingual SLT's were employed in private practice, and the remaining two were employed in the public sector. Two of the professional participants in this study provided services in Afrikaans and English (n=2), and 3 participants provided services in Afrikaans, English and isiXhosa (n=3). Two of the participants reported providing services to Shona-speaking children (n=2) in the past, and one participant also mentioned previous experience with Swahili-speaking families. One of the participants mentioned previous experience with French-speaking, Russian-speaking, Chinese-speaking and Czech-speaking families. Three participants chose to respond in English, and two participants chose to respond in Afrikaans. All the SLT's who participated in the semi-structured interviews were female, with 4 Caucasian and 1 African SLT participant. Two of the SLT participants were between 20-30 years of age, and three of the participants were between 31-40 years of age. Three of the SLT participants in this study had at least 5 years' experience in working with children with developmental disabilities. One participant had between 6-10 years' experience, and the final participant had more than 11 years' experience in working with children with developmental disabilities. Below please find a summary of professional participant demographics:

***Table 2:* SLT interview participant demographics (n=5)**

Demographics		*Number of SLTs*
Age range of SLT's	20-30 31-40	2 3
Languages that the SLT provides intervention in	Afrikaans/English isiXhosa/English English/Nguni/Other languages	2 1 2
Years of experience	0-5 6-10 11+	3 1 1
Service sector employment	Public Private	2 3

A total of eleven (11) parents participated in the focus group discussions. All six participants in the first focus group had children within a private, dual-medium Afrikaans-English school and home environment. In the second focus group, all five participants had children within an English-medium school and multilingual home environments. Afrikaans-English was reported as the primary languages in the home and educational environments by eight parents, with two parents reporting English-isiXhosa spoken at home, and one parent reporting isiXhosa-isiZulu spoken at home. During the focus group discussions, participants in the first focus group responded predominantly in Afrikaans and/or English, with participants responding primarily in English during the second focus group. None of the participants responded in any additional languages during the data collection phase of this study, although a translator who was fluent in both Afrikaans and isiXhosa was available during both focus group discussions. Below please find a summary of parental participant demographics:

***Table 3:** Parent Focus group participant demographics (n=11)*

	Demographics	*Number of parents*
Age range of parents	20-30 31-40	1 7

	41-50 51+	2 1
Gender of parents	Male Female	4 7
Languages spoken in the home/school environment	Afrikaans/English isiXhosa/English Other	8 2 1
Age of child with a developmental disability	0-3 years 4-6 years 7 years +	1 6 4

3.6. Study personnel:

Five individuals were involved throughout the study. The research supervisor, co-supervisor and student researcher were primarily responsible for creating the materials prior to data collection. The research supervisor, student researcher and a multilingual research assistant were involved in the data collection phase. The student researcher is a first language Afrikaans-speaker, and the research supervisor is a first language English speaker. However, in-depth knowledge of isiXhosa was reported as limited by both the student researcher and the research supervisor. A research assistant, fluent in isiXhosa, English and Afrikaans, was therefore recruited to assist with both focus group discussions. As the study aimed to capture individual perceptions as holistically as possible, the use of a multilingual research assistant, who is also father to a child with ASD, allowed participants to comfortably provide input in their preferred language. The research assistant was also tasked with taking field notes, operating the voice recorder and assisting with time management during the focus group discussions (Krueger & Casey, 2009). The research assistant was required to sign a confidentiality agreement protecting all information gathered throughout the study. This individual was available to translate any information shared between the researchers and the participants during the discussions if needed.

The student researcher was responsible for the transcription of the semi-structured interviews and focus groups. Two institutions were contacted to assist with transcribing the data. In order to protect the confidentiality of participants in this study, the researcher instructed both institutions on the codes to use during transcription. Codes were open-ended and were only assigned to indicate the number of speakers on the

recording (i.e. RS= student researcher; SLT 1= SLT participant; P 1= first parent participant heard on recording). Both institutions regarded and upheld the confidentiality of the transcribed data. Recordings were individually uploaded to an electronic platform within the chosen institution by the researcher, where the file was only available for a limited number of days to allow for transcription before being destroyed. Each recording was downloaded by a single transcriber, and the researcher was notified of the transcriber's details via email to ensure no additional persons had access to the data. The completed transcripts were sent individually to only the researcher, and no additional copies were sent to any third-person parties. Both institutions were blinded to the nature of the study, with the only information available to them being the recording and the codes ordered by the researcher.

During the data analysis phase of this study, an additional SLT with 11 years' experience in working with children with developmental disabilities was recruited to recode a percentage of the transcripts.

3.7. Equipment and materials:

The following materials and equipment were used during the data collection phase of this study:

3.7.1. Equipment for focus groups and semi-structured interviews

A voice recorder was used to record the discussions with the participants in the focus groups and semi-structured interviews with the bilingual SLT's. The recordings were stored on a password protected laptop where the data will be retained until the findings have been published. A laptop, data projector and portable speakers were used to present the video material and guide to the participants. Skype was used to conduct two of the semi-structured interviews. No additional equipment was required in the data collection phase of this study.

3.7.2. Materials for focus groups and semi-structured interviews

Research suggests that incorporating a focus group guide assists in the systematic and comprehensive interviewing of a group. The guide allows interactions to remain focused whilst still allowing individual perspectives and experiences to emerge (Patton, 2002). Table 4 provides an overview of the key questions in relation to the area of implementation science being addressed.

Table 4: Summary of key questions posed to participants during data collection procedures:

Area investigated	*SLT key questions*	*Focus Group key questions*
Applicability (fit) of EMT	Would you be **willing to recommend** this kind of intervention to a family on your caseload? *(Why/Why not? Which factors would influence your decision?)*	When looking at the activities on the videoclips would you be **able to repeat** the same type of activity at home? What were some aspects of the videoclips that you **liked/agreed** with?
Acceptability of EMT goals in multilinguistic settings	What are some of the first single words that typically developing children who speak Afrikaans- or IsiXhosa acquire? *(Are these **similar/different** to what we would target in English? If so, how)*	Some of the **goals/targets** of this intervention programme include that a child can: Request (ask for) and Comment (tell us about). Would you say **these goals are important** within your home environment?
Appropriateness of materials	Can you suggest some ideas of **additional material (toys)** that would be culturally appropriate for the community you grew up in, or work in now, based on cultural differences?	Can you suggest some ideas of **additional material (toys)** that would be culturally appropriate in your home environment?
Possible adaptations (including barriers and facilitators)	What would some of the **benefits and challenges** be to training someone like you to implement some of these	What would some of the **benefits and challenges** be

	strategies in your own clinical practice? What are your perceptions/thoughts/feelings regarding the willingness of parents to be intervention partners in general? ***Which factors, do you think, may influence this?***	to training you as a parent in EMT? What do you feel are some aspects of this intervention that **could be changed** to make the intervention more suitable to you and your family?

Appendices 6 and 7 contain the guides used in both the semi-structured interviews and focus groups. Appendices 8 and 9 contain the additional documentation that each participant had to complete after the interviews/discussions. A handout (researcher's own) was used to explain the different aspects of communication to parents, in order to highlight the importance of play and interaction to support communicative development. These were the primary materials used in the data collection phase of this study (see Table 5).

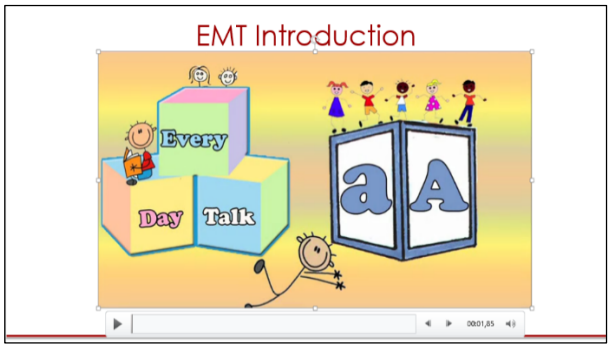
Both the focus group and semi-structured interview participants viewed video material of EMT being implemented with a young child in a first-world setting, as well as within a South African clinical context. Participants also had access to a list of potential toys and play-based activities appropriate for various play levels, as can be seen below:

Table 5: Handout illustrating developmental play levels and suggested toy sets/ activities for each level of play:

Play levels	***Suggested toys***	***Examples of play actions***
Combination	Shape sorter/puzzles Building blocks;	Stacks blocks; puts puzzle pieces in puzzle; takes shapes out of shape sorter.

Almost symbolic	Farmyard animals, tractor and barn	Child pretends Animals/ People are driving the tractor. Child pretends to feed the animals.
Symbolic	Dolls and pretend play cake and tea set	Dolls cut cake and place on plate; dolls eat cake; dolls pour tea and drink it.

Some of the video materials have been developed by the KIDtalk laboratory, and consent for the use of these video materials as training aids was obtained from Vanderbilt University prior to the data collection phase of this study. These video resources were used to demonstrate the different EMT goals, activities, materials and outcomes to the focus groups and the semi-structured interview participants. Participants established their perspectives of the acceptability, appropriateness and the applicability (fit) of EMT in their contexts, based on the video material presented to them. A series of questions to establish professional and parental perceptions of the acceptability and appropriateness of an intervention such as EMT within a multilingual and/or multicultural environment was used. This allowed professional participants to provide input regarding the targets, materials and goals of EMT, and parental participants could provide input regarding the goals, strategies and materials used in EMT. After the introduction and video viewings, participants were initially asked to provide their perceptions regarding the appropriateness of EMT, as set out below:



Interview and Discussion Guide Introductions

SLT input regarding multilinguistic targets

Input regarding culturally-appropriate materials

Questions to professional participants included determining appropriate early language targets for both Afrikaans and isiXhosa speaking children relative to English. Parent participants were asked to provide suggestions on any modifications that may be required to ensure that the 4 components of the EMT intervention (responsive interaction, modelling and expanding and the use of time delays and prompting strategies) are culturally appropriate within the South African context. These questions allowed the student researcher to gather stakeholder insights related to the appropriateness of EMT, the facilitators/barriers affecting EMT as a responsive intervention in South Africa, and the adaptations required to improve the fit of EMT in a multilingual and/or multicultural context.

3.8. Data collection procedures:

Ethical approval for this study was obtained from the Human Research and Ethics Committee (HREC) prior to the commencement of this study: HREC 584/2017 (Appendix 10). Permission to access potential schools and parental databases was also obtained from the Western Cape Education Department (WCED) (Appendix 11) as well as the principals of both *School A* and *School B* (Appendix 3). Examples of the consent letter for SLTs and parents can be found in Appendices 2 and 4. Written consent was also obtained from each SLT and parent participant prior to the commencement of the semi-structured interviews and focus group discussions.

3.8.1. Pilot study

The semi-structured interview guide was piloted with one bilingual SLT who is also a member of a South African University. The focus group guide was also piloted with a

mother of a child with ASD. The pilot studies were conducted in order to test the proposed format and materials of both guides. Any ambiguity, or areas requiring additional clarity, could be identified and resolved before the commencement of data collection procedures.

Upon receiving feedback from the participants in the pilot studies, it was decided to include additional video materials of EMT being conducted in a South African context, as well as to include key findings from an EMT study conducted within a South African context. This provided participants with evidence of EMT being implemented both internationally and in a local context. Questions in both the interview and focus group guides were also revised and clarified, and all questions were moved to the end of the guide, following the researcher's introduction to EMT and the video clips demonstrating the approach.

3.8.2. Semi-structured interviews

Three of the semi-structured interviews were conducted face-to-face, in a setting easily accessible to the participants. The following considerations were made with regard to the organization of each of the interviews:

- The chosen venue was quiet to minimize distractions, and could accommodate both the student researcher, participant and laptop comfortably
- The student researcher and participant were seated opposite one another where the participant had a clear view of the interview guide data projected from the laptop. The environment was structured in this way as to encourage a sense of ease and to ensure participants were comfortable throughout the interviews (Krueger & Casey, 2009).
- Snacks and refreshments were available at the start of the interviews in order to establish a comfortable rapport before the start of the data collection procedures

The remaining two interviews were conducted via a video-call function in Skype, at a time convenient for both participants. The researcher and participants were mindful to choose quiet locations after work hours in order to minimize distractions (Krueger & Casey, 2009). The semi-structured interview guide was also displayed on the screen throughout each of the interviews in order to provide participants with a sense of ease regarding the structure of the interview.

Each interview started with a brief welcoming and an overview of the proceedings and expectations of the participants. Each semi-structured interview was audio recorded with the participants' permission. The researcher restated that confidentiality of participant information would be upheld and proceeded to initiate the interview using the semi-structured interview guide available in Appendix 7. This guide was also available to participants during the Skype interviews, via a Gmail-link to a folder containing only the guide in read-only format. The interviews lasted between one- to one and a half hours each, and the folder containing the guide was deleted after completion of the Skype interview.

The researcher paid careful attention to any opinions expressed which warranted further exploration and provided opportunities for participants to expand upon these points. Participants were given the opportunity to provide any additional thoughts or feelings after completion of the interviews and were reminded that they would receive the transcript to verify its validity after the interview.

Participants selected the language they wanted to respond in for each of the interviews. After completion of the interviews, each participant was required to complete a demographic questionnaire (Appendix 8), a list of culturally appropriate toy sets (shown in Table 4 on page 43) to be used with the implementation of EMT within a multilingual and/or multicultural South African context, and a list of possible vocabulary items that they would target if they were to implement EMT in Afrikaans or isiXhosa. The transcript of each participant's interview was emailed to them within seven (7) working days after the interview was completed. Participants were then provided with the opportunity to check the accuracy of the transcript (Appendix 12), and to provide any additional information/clarification on points if they felt this was necessary. Each professional received an accuracy of transcript form however none of the participants indicated they required changes to the transcripts.

3.8.3. Focus group discussions

The parent focus groups were conducted at a venue easily accessible to the participants. The purpose of the study and instructions for participating in the group were explained to the participants during the consent procedure, and again before the focus groups were conducted. The following considerations were made regarding the organization of the physical venue for the focus groups:

- The venue chosen was large enough to accommodate all participants and researchers comfortably, and was quiet to minimize distractions
- The setting was structured in a semi-circle as to encourage a sense of ease and to ensure participants were comfortable throughout the focus group procedure (Krueger & Casey, 2009).
- Snacks and refreshments were available in the same venue at the beginning of the focus group discussion to facilitate communication and engagement between participants.

The focus group then commenced and followed the guidelines as stipulated by Krueger & Casey, 2009.

The researcher, research supervisor and research assistant were present during both focus groups, with the research assistant welcoming each individual upon arrival and showing them to their seats. Seating in both groups were arranged in an open semi-circle, with the audio recorder placed in the middle of the group to create a more comfortable setting (Krueger & Casey, 2009). Once all the participants were comfortably seated, the student researcher welcomed all participants and provided an overview of applicable rules to ensure that the focus groups could be conducted smoothly (Krueger & Casey, 2009). The student researcher emphasized the group expectations such as allowing everyone a fair chance to speak, showing respect for others' opinions as well as the importance of confidentiality outside of the group setting. The student researcher then commenced with the focus group discussion. A PowerPoint presentation guide (Appendix 6) of the discussion questions was used as a visual aid by the researcher during both groups. The group discussion guide was also used to ensure that all areas of interest were adequately addressed and discussed, as participants could reread questions or ask to return back to a previous point if needed.

During the focus groups, participants were able to respond in their preferred language, as the researcher is a home-language Afrikaans-speaker and a research assistant fluent in isiXhosa, Afrikaans and English was also recruited and available during both focus group discussions. The student researcher lead the discussion and paid careful attention to the flow of conversation while noting any important topics that arose for further discussion at any stage. Throughout the focus group discussion, the student researcher employed the strategies suggested by Krueger & Casey (2009) to facilitate engagement and participation by group members and fair and accurate representation

of views obtained. In order to do this, the student researcher prompted overly quiet participants to engage in the discussion, and summarized responses to provide participants with the opportunity to confirm or elaborate on the responses obtained.

The format of the focus group discussion was as follows: EMT was introduced through a short video produced in the USA, followed by a short video clip of EMT being implemented in the South African context. Thereafter, additional video clips demonstrating the aims and goals of EMT was shown to the participants, as well as examples of the toy sets used in EMT. Participants were then asked a series of questions to establish their perceptions of the applicability of an intervention such as EMT within a multilingual and/or multicultural home environment within South Africa. The focus groups duration was between two and two and a half hours in total, where the first hour was used to introduce EMT and the objectives of the current study to the participants. Hereafter, the discussion commenced in accordance with the questions contained in the guide, where the parents were actively engaged in discussion for approximately one, to one and a half hours. The researcher then gave participants the opportunity to share any final points or feelings before ending the discussions. Immediately following the focus group, the research supervisor and student researcher reflected on the group discussions. Patton (2002) suggests using this time for the clarification, elaboration and consolidation of accurate and complete data.

Transcripts of the focus groups were sent to participants within seven (7) working days after completion of the discussions via hard copy to provide participants with the opportunity to verify the accuracy of the transcripts (Appendix 12). Participants were also able to provide clarity and/or additional information on any points if necessitated. Families associated with *School B* requested to send accuracy of transcription forms to the school for the researcher to collect. Parents associated with *School A* preferred email correspondence throughout this study. The researchers agreed to these arrangements and sent documentation as requested. The same individual staff member who identified potential families to be contacted from *School B* was also identified as the person to whom the families would feel comfortable in giving the accuracy of transcription forms to. Parents from *School A* corresponded with the researcher directly via email. All of the parents received an accuracy of transcript forms Two forms were returned to the researchers, with no changes indicated on either form. Thereafter, the student researcher contacted participants via email and/or SMS requesting the forms and confirming that no further response would be indicative of

accurate representations. The researchers received no further responses or changes from any of the parent participants.

3.9. Data analysis:

Once all the transcripts and additional documentation from the five SLT interviews and two focus group discussions were collated, the primary researcher of this study created a DEDOOSE account. Access was granted to the student researcher with a unique login code. The research student was able to upload each of the verified transcripts to DEDOOSE, thereby ensuring that only the primary researcher and student researcher would have access to, and be able to analyse, participant data.

The student researcher immersed herself in the data gathered to familiarize herself with the data set (Creswell, 2013; Terre Blanche et al, 2006). Note-writing was used in this initial phase of exploring the data set, where key ideas were highlighted (Creswell, 2013). Data from the focus group discussions and semi-structured interviews were analysed using thematic analysis from an interpretive paradigm, which involves understanding individuals within the world in which they live and work through the development of subjective meanings of experiences (Creswell, 2011).

Data was initially organized into themes through coding, where the data was reduced into meaningful segments and assigned labels. According to Neuman (2014) coding occurs in three phases, namely open coding, axial coding and selective coding. Open coding involves the researcher locating themes and assigning initial codes to condense the data set into categories. During axial coding, the focus is on reviewing and examining the initial codes. There is a move towards organizing the codes and identifying key concepts during this phase of data analysis. In this phase of coding the student researcher attempted to refine the initial codes. Finally, selective coding is the process whereby the student researcher relooked at previous codes and the dataset with the aim of identifying and selecting cases that illustrate and support the coding categories that were developed. Hereafter, the data was condensed into broader themes. The researcher followed the data analysis spiral as proposed by Creswell (2011), whereby data was organized, read and noted, and then classified and interpreted within codes.

Beyond coding, classifying the data involves taking the text apart and looking for categories, themes or dimensions of information in a bottom–up approach (Creswell, 2013). Themes in qualitative research are broad units of information that consist of

several codes aggregated to form a common idea (Creswell, 2013). This was done separately for each of the uploaded transcripts, allowing the student researcher to compare the assigned codes across all the uploaded transcripts to identify broad themes within the data obtained in this study (Creswell, 2013; Neuman, 2006; Terre Blanche et al., 2006). During this comparison, it was found that the meaningful units within the data corresponded to issues at various levels of service delivery. It became evident that the systematic analysis and reporting of the data obtained through thematic analysis alone would be insufficient. The adaptome framework (Chambers & Norton, 2016) was selected as an appropriate framework within which to describe the data from this study. It was felt that consideration would be given to EMT as an intervention and provided opportunity to address issues relating to appropriateness. This allowed the researchers the opportunity to investigate participant perceptions regarding the appropriateness and applicability of EMT, as well as the barriers and facilitators affecting the overall fit of EMT in South Africa. The framework provided consideration to the core components of EMT and the fit thereof within a multilingual and/or multicultural context such as South Africa. The adaptome framework (Chambers & Norton, 2016) further allowed the researchers to address issues related to adaptations within four (4) distinct sources, providing holistic analysis of professional and parental perceptions obtained within the study. These sources are (i) service setting adaptations; (ii) target audience adaptations; (iii) mode of delivery adaptations (iv) cultural adaptations. These 4 sources are visually represented below: :

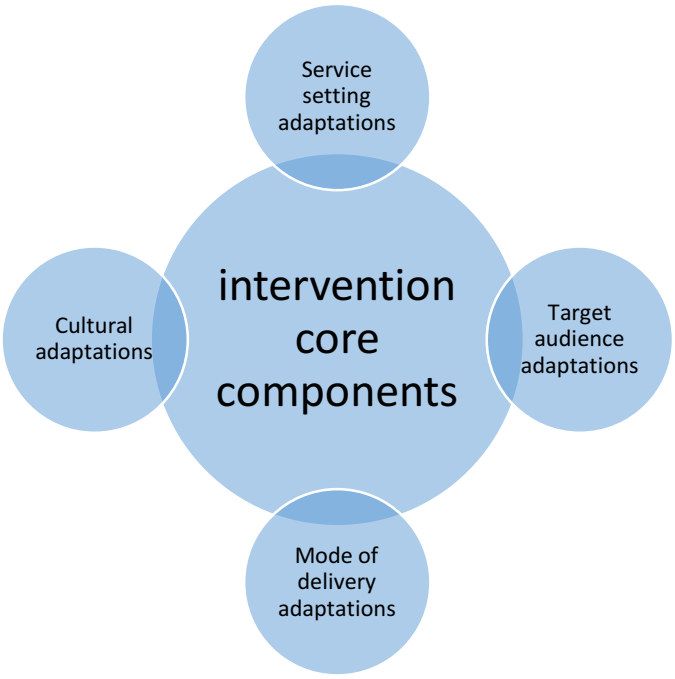


***Figure 1:* Sources of intervention adaptations within the adaptome framework (adapted from Chambers & Norton, 2016)**

Once the adaptome framework (Chamber & Norton, 2016) was chosen, a coding rubric was developed (Appendix 13), where the meaningful units already obtained within the data could be placed with a corresponding code through axial coding (Neuman, 2006). Once all meaningful units were assigned to corresponding codes, the codes could be grouped into self-generated subthemes, which was verified by the co-supervisor of this study, as she had not been involved in any other aspect of the coding process and would therefore minimize any potential researcher bias related to the coding procedures. The coding rubric and a percentage of the coded transcripts were sent to a third-party coder for verification. The third coder was an SLT with more than 10 years' experience in working with children with developmental disabilities. She assigned meaningful units to the data from this study using the coding rubric provided by the student researcher. After completion of the third-party coding, the research team met to review the codes, where any disagreements were resolved using consensus between the 3 coders. After the initial round of reviews, minor changes were made to the coding rubric. The third-party SLT then used the revised coding rubric to recode a different transcript from the data set. Consensus regarding the assigned codes was reached after the second round of reviews.

3.10. Ethical considerations:

The principles, as outlined within the declaration of Helsinki (WHO, 2013), were adhered to throughout both semi-structured interviews and focus group discussions in this study. This qualitative study was minimally-intrusive and therefore carried minimal risk.

Within the qualitative component of this study, the researcher recruited bilingual adults of children with developmental disabilities. Both the semi-structured interviews and focus group discussions were audio recorded during data collection. Raw data was stored on a password-protected laptop before data collection, and on within a password-protected DEDOOSE account during the data analysis phase. The principles of autonomy and choice, beneficence, and participant confidentiality could

have been affected in this study, and the following measures were incorporated to address these issues:

- Written consent for inclusion in the semi-structured interviews and focus groups was obtained prior to the start of this study
- All procedures were explained in written format to each participant, and the principle of confidentiality was reiterated during data collection procedures
- Researcher contact details were made available on all documentation should participants have any questions or concerns

A comprehensive overview of ethical considerations applicable to this study as summarized in Appendix 14.

3.11. Research rigour:

Research rigour involves utilizing measures which ensure that the results obtained in this study would be trustworthy (Lincoln & Guba, 1985). Trustworthiness involves measures to ensure that gathered results can be trusted and that findings are worth paying attention to (Lincoln & Guba, 1985; Yin, Inquiry, & Beverly, 2013). Trustworthiness encompasses 4 components, namely: credibility, transferability, dependability and confirmability (Thomas & Magilvy, 2011).

Credibility describes participants recognizing and sharing views and opinions, as well as the accurate representation of this data by the researcher (Cope, 2014). The researcher ensured credibility through reviewing transcripts member-checking (Thomas & Magilvy, 2011). Member-checking involved giving participants their transcripts and having them verify the accuracy thereof through editing, clarification and elaboration. Transferability describes the extent to which results can be applied in similar contexts (Cope, 2014). In a descriptive study, it is assumed that the findings are context specific and for that reason does not aim for results to be transferable.

Dependability is defined as a reader's ability to follow the research process used by the researcher (Cope, 2014). An audit trail of the procedures and processes carried out by the researcher could enable another researcher to replicate the study. The audit trail included the researcher's notes, raw data, audio recordings, summaries as well as emerging themes. These procedures and processes were captured on a password-protected laptop.

Confirmability refers to the extent to which the findings reflect the focus of the enquiry and not the bias of the researcher (Cope, 2014). Confirmability therefore requires a self-critical attitude from the student researcher (Cope, 2014). The student researcher aimed to achieve confirmability by using quotes from participants to depict a true representation of their perspectives provided in this study. Furthermore, triangulation and debriefing can be used to ensure credibility, and both these measures were incorporated in this study. The use of a research assistant during data collection, as well as debriefing with the research supervisor after each aspect of data collection and incorporating an additional coder during data analysis improved the credibility of this study.

Methodological triangulation was supported through the use of both semi-structured interviews and focus group discussions to obtain data in this study, in order to ensure that the results of this study could be applied across similar contexts (Cope, 2014). The student researcher noted any feelings of bias or insights after each stage of the data collection process which could potentially influence the analysis of the data (Thomas & Magilvy, 2011). The student researcher was aware that her own positionality could lead to certain subjective preconceptions and bias in the analysis of the data (Tufford & Newman, 2010). In order to mediate any potential bias, the student researcher therefore made use of bracketing with both the interviews and focus group discussions (Creswell, 2003) in order to mediate any potential bias. This was achieved through the use of the adaptome framework (Chambers & Norton, 2016) to report on the results obtained in this study.

The researcher, being a professional within the private health care sector, was also mindful to incorporate both a parent research assistant and a professional SLT as an additional coder in this study. The use of individuals from both stakeholder groups allowed the student researcher to monitor the effects of any preconceived perceptions during the data collection and data analysis procedures. The student researcher also made use of direct participant quotes in the analysis of the data in order to represent professional and parental participant perceptions adequately and minimize any potential researcher bias in the reporting of results obtained.

3.12. Summary:

This chapter provided a description of the chosen research design for this study. Sampling procedures, as well as participant recruitment procedures and participant

demographics were presented. Data collection and data analysis procedures were then provided, as well as an overview of applicable ethical considerations and issues relating to research rigour. The results obtained from the data analysis in this chapter will be further explored in Chapter 4.

CHAPTER 4: RESULTS AND DISCUSSION:

4.1. Introduction:

The research question being explored in this study was: *"What are stakeholder perceptions of implementing Enhanced Milieu Teaching (EMT) for young children with developmental disabilities who reside in the Western Cape and speak Afrikaans or isiXhosa at home?"* In order to adequately answer this question, stakeholder perspectives regarding the appropriateness and acceptability of the EMT materials and targets were required. Additionally, stakeholder perspectives regarding the applicability of EMT goals and strategies were required. Hereafter potential areas for adaptations were analysed according to a single coding rubric (Appendix 13), which was based upon the adaptome framework (Chambers & Norton, 2016).

Data for this study was obtained through both semi-structured interviews and focus group discussions. This chapter includes rich descriptions of each of the sub-themes, supported by participant excerpts. All participants were bilingual Afrikaans-English or IsiXhosa-English speakers. All transcripts were translated into English and excerpts are presented in English. However, culturally appropriate interjections have been retained within the excerpts.

In order to address the objectives set out in the methods chapter of this dissertation, this chapter explores 4 areas namely: the appropriateness of EMT and its core components; stakeholder perspectives of the acceptability of EMT; stakeholder perspectives on the applicability of EMT; as well as stakeholder perspectives regarding the adaptations that might need to be made to EMT in order to improve the fit of the intervention to culturally and linguistically diverse contexts. The adaptations described in this study are discussed using the 4 sources of adaptation outlined in the adaptome framework (Chambers & Norton, 2016). This chapter ends with a summary of the key findings obtained in this study.

4.2. Appropriateness of the core components of Enhanced Milieu Teaching in a culturally and linguistically diverse context:

The implementation of interventions in various service settings is a complex social process that is contingent upon each individual setting. Chambers & Norton (2016)

highlight the ample evidence stating the challenges encountered when adapting an intervention to diverse settings. They state that the intervention, target populations and communities served, as well as service delivery systems may differ between clinical trials and real-world implementation. As a result, many interventions which have been proven to be effective in a clinical setting, fail to translate from clinical research studies into meaningful outcomes in diverse patient contexts (Damschroder et al., 2009). In this study stakeholder input was used to inform decisions regarding the appropriateness of EMT's core components, as well as obtain insight into potential adaptations which may be needed within a context such as South Africa. This will allow for flexible delivery of the intervention whilst retaining fidelity levels associated with the core components of the intervention (Chambers & Norton, 2016). To establish stakeholder views, two video clips were played to each of the participants. The first video clip showed the developers of EMT explaining and demonstrating the intervention in a first-world, home setting. The second video clip showed a trained EMT clinician conducting the intervention in a clinical setting in Cape Town, South Africa. Participant perspectives regarding the appropriateness of the core components of EMT were then obtained, as can be found in the excerpts below:

I think because it's so similar to what I'm already doing, if you think of the language stimulation that I'm doing and the play. It does really fit in with that so, it would be very easy to carry on and because I know that I do have families that are really willing and willing to do things at home and then also, thinking about if we could, let's say we need so many sessions, and then if the parent could carry on at home, like that's really, I'd say cost effective and time effective, because at the end of the day I can't keep kids on my case load forever.

(SLT 5)

"I think it could work very well especially in the South African context. Getting the parents more interactive with the children will be good."

(SLT 3)

"I think it might be quite a way to empower parents. Learning how to better communicate with their children because it is something that parents want their kids to talk…"

(SLT 5)

"This, EMT, makes me happy, because I like the sessions and it is still, it fits in with everything I've learned so far."

(FG 1; P1)

From these excerpts, it is clear that the core components of EMT are appropriate to bilingual SLTs in both the private and public health care sector, as well as multilingual English-Afrikaans and/or English-isiXhosa speaking families. Participants unanimously expressed a positive attitude towards the core components of EMT as demonstrated in the video material. Participants highlighted the naturalistic approach in EMT as a primary factor contributing to their positive attitudes. Both parents and professionals indicated that they liked the parent involvement in the implementation of the intervention. Recent literature found that caregivers in Cape Town, South Africa, expressed a need to be trained as interventionists within individualized, home-based settings (Guler et al., 2017). There is also evidence that caregiver insight into their children's needs, as well as factors which improve or limit service delivery could augment intervention practices (Stadnick et al., 2013). Previous literature has indicated that caregivers are able to provide the linguistic models required to support children's language development in the language(s) they have high proficiency (Hammer, Davison, Lawrence, & Miccio, 2009; Hoff et al., 2014).

For example, a study in which EMT was implemented with Spanish-speaking populations, reported that adaptations needed to be made to accommodate the diverse dialects of Spanish spoken by the families (Peredo, Zelaya, & Kaiser, 2018). Caregivers in this study were asked to provide input regarding the target words which would be applicable to target within the dialect of Spanish that was spoken in their home (Peredo et al., 2018). Additionally, it was found that traditional EMT components, such as giving children more choices, were not culturally familiar to Spanish-speaking families and therefore both linguistic and cultural adaptations were required in this study in order to support effective intervention implementation in this population (Peredo et al., 2018). It was found that, although Spanish-speaking parents learnt to implement EMT within their homes and children benefitted from the intervention, certain adaptations to the peripheral components of the intervention (linguistic, cultural, mode of delivery) were needed to improve the fit of the intervention for the diverse group of families receiving training.

Therefore, in order to improve the overall fit of an intervention across diverse service settings, knowledge regarding "what works," "where it works" and "why it works" is needed to assess the extent of intervention effectiveness in various service settings and improve the implementation and sustainability of an intervention in novel contexts (Damschroder et al., 2009). While intervention fidelity to core components is necessary to ensure effectiveness there is an "adaptable periphery" of elements which could be altered without affecting the effectiveness of the essential components (Damschroder et al., 2009). This is explored in 4.3 below.

4.3. Acceptability of Enhanced Milieu Teaching intervention in South Africa:

EMT core components are appropriate for stakeholders who participated in this project. However, there is tension between the fit of an intervention in a new context and the need to implement the intervention to fidelity as originally intended, in order to ensure the intervention retains its efficacy (Chambers & Norton, 2016). This tension between adaptation and fit may look different in each novel setting. In South Africa, the biggest area of misfit related to the level of diversity (culturally, linguistic and economic diversity) present in this context. Thus, scrutinizing the acceptability of EMT is part of understanding the overall applicability of EMT within multilingual and/or multicultural contexts in South Africa. Acceptability can be defined as how satisfactory an intervention would be regarded in the service settings in which it is being implemented (Olswang & Prelock, 2015).

Developing countries such as South Africa face a multitude of challenges to the sustained provision of intervention services. Access to services, as well as the mismatch between intervention programs conducted within the clinical setup and diverse family home settings, may have a negative impact on caregiver participation in both training and intervention. The limited normative data regarding language development in different South African languages, as well as the cultural and linguistic mismatch between many families and service providers may be described as implementation barriers. As a result, although participants expressed positive opinions towards the essential components of EMT, various concerns were raised with regard to the acceptability of EMT when implemented across diverse service settings. This can be seen in the excerpts presented below:

"…everybody in this context would benefit from it, it would just need tweaking to be contextually appropriate."

(SLT 2)

"A lot of parents don't feel like the whole play-based type therapy is something that works and is something that they would not want to do. So I think that might be a barrier."

(SLT 3)

"The multilingual factor, I think it makes it difficult especially if the parents want to speak one language at home and you are doing another language at school. Trying to match those two languages up with each other might be difficult. That is something that needs to be discussed with the parents before starting therapy."

(SLT 3)

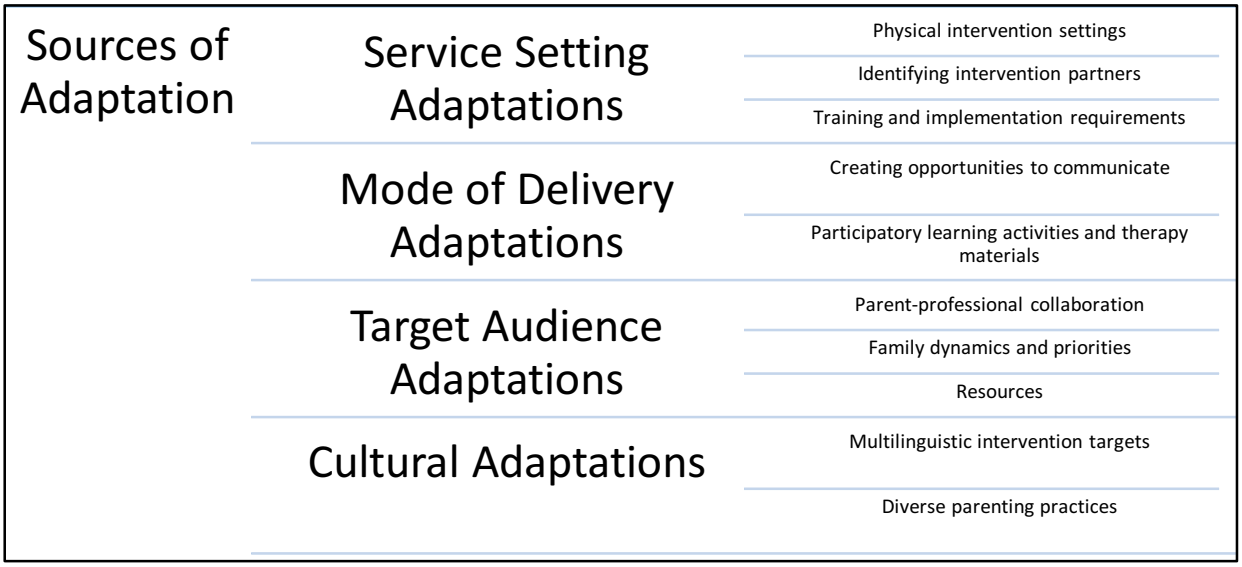
Participants have raised concerns relating to various aspects of implementing EMT within their contexts. These barriers need to be explored, and potential adaptations need to be identified which may increase the acceptability of EMT. Whilst there is evidence that EMT can be implemented to fidelity within a clinical setting (Hampton, Harty, Fuller, & Kaiser, 2019), if our goal was to implement EMT within a community clinic or home context successfully, stakeholder input and perspectives would be of utmost importance.

4.4. Applicability of EMT in South Africa: Parent and professional stakeholder views:

The effectiveness of Enhanced Milieu Teaching (EMT) has been established in both trainer-implemented (Hancock & Kaiser, 2002; Kaiser & Hester, 1994) and parent-implemented intervention studies in the USA (Roberts et al., 2014), where both populations could be trained to implement EMT to fidelity. Participants in previous research studies were able to learn EMT strategies in clinical settings fairly quickly, and were able to maintain these skills even after training had been completed (Hancock & Kaiser, 2002; Kaiser & Hester, 1994).

Within this study, participants felt that the core components of EMT and goals of EMT were appropriate within diverse professional and home service settings. However,

participants identified various considerations which may affect EMT implementation at various level of service delivery. The adaptome framework (Chambers & Norton, 2016) was used to categorize these considerations, as it considers a long-term view of an intervention's need to evolve within various environments, and therefore supports an evolutionary approach to sustainability. This evolutionary approach allows multiple versions of a single intervention to exist over time, where each version can be studied to support the optimal design and implementation of the intervention, based upon a more robust understanding of optimizing effective interventions in future contexts (Chambers & Norton, 2016). Therefore, in order to adequately address the research objectives for this study, the subthemes relating to potential adaptations that emerged from the transcripts were categorized within the four sources of adaptation found within the adaptome framework (Chambers & Norton, 2016). These four sources and the ten subthemes are summarized below:



<u>Figure 2:</u> Main sources of adaptation according to adaptome framework, and the corresponding sub-themes generated from the data

Parent and professional stakeholders identified numerous factors which would require careful consideration in the process of maximising the applicability of EMT in a multilinguistic and/or multicultural context such as South Africa. The four sources of adaptations, as well as the subthemes as found within this study, will be individually explored below:

4.5. Source 1: Service setting adaptations

The first source of adaptations within the adaptome framework addresses the service settings in which an intervention could be conducted (Chambers & Norton, 2016). The available finances within diverse service settings, as well as which individuals would be seen as interventionists in the respective service settings, are examples of potential service setting adaptations. The "catchphrase" excerpt chosen as the summary of this area of adaptations was:

> *What was different though, was just the environment and the types of materials that they were using, which is not stuff that I always have access to, and the environment especially. Like, it was a very quiet environment… They were sort of just focussing here and working their way. Where with us, often it is quite noisy. You have people coming in and out, and there's a lot of chaos happening so, it does make it a bit difficult… – SLT 5*

Within this study, a total of three (3) subthemes related to *service delivery adaptations* were identified, namely: *physical intervention settings, identifying intervention partners* and *training and implementation requirements*. The results of these subthemes will be presented below:

4.5.1. Sub-theme 1: Physical intervention settings

Participants in this study represented the public and private health care and schooling systems, and represented parent experiences from both provincial and private schools of Cape Town, South Africa. Valuable input regarding the professionals' perspectives on the physical settings utilized in intervention services, as well as parent feelings regarding interventions conducted in a clinic versus home context were obtained. This can be seen in the excerpts below:

"Because that's also the reality of this context…that you don't always have access to the child as regularly as you would like so that the carryover is the way that you would like for it to be."

(SLT 2)

"Basically, just because I don't have one office. I travel around so, I have to take all my stuff with me so, it's very difficult to have a wide variety of things for the child to maybe choose from."

(SLT 5)

"A practice usually takes a while before they can build up their resources and everything and parents won't necessarily be able to immediately obtain or buy all the therapeutic toys that they see you using in the session."

(SLT 3)

"He won't sit there and play with us. We can come outside and play with him, yes. But then he's going to move from here to there constantly. You need to move with him….I can't go anywhere without having him physically attached to me. If he's not… he just darted out."

(FG 2; P 1)

As stated in the literature review, one of the primary structural barriers to intervention in South Africa is access to services. Previous studies have reported that caregivers struggle to interact with the health care system, resulting in delayed treatment (Mitchell & Holdt, 2014) and limited support from service providers (Du Toit & Kok, 1999; Olivier & Hing, 2009). South Africa's significant social and economic disparities are well documented (SSA, 2014), with very limited intervention services available in the public sector, while services in the private sector are not always evidence-based and the quality of services varies significantly (Guler et al., 2017).

The abovementioned excerpts indicate that both professionals and parents experience difficulties in the provision of relevant, effective interventions and this influences both professionals' ability to provide sustained intervention, and parents' ability to continue the intervention outside of the unfamiliar clinical setting. Sustained access to relevant intervention contexts and well-established partnerships between parents and professionals to address service delivery setting limitations were highlighted as areas for possible adaptation. Professional participants from both public and private service sectors reported large caseloads and limited contact time with patients. This affects SLT's ability to generalize intervention targets, both within the therapeutic environment and outside of the clinical setting. Professionals expressed a need to train

parents/caregivers to target and support intervention goals outside of the therapeutic context, although they were concerned that caregiver availability could affect the sustainability of EMT training in diverse service settings. Professionals also mentioned frequent travelling between various clinic, school and office settings which influenced their ability to arrange a quiet environment with multiple toy sets as apparent in the videos demonstrating an EMT session.

Intervention programmes can be home- or centre-based, but have proven to be most effective when skills learnt at centre-based programmes are continually reinforced in the home environment (Vermoter & Town, 2008; Woods, Wilcox, Friedman, & Murch, 2011). This provides support for the current findings, where parent participants expressed a strong need to be trained and empowered to assist their children in communicating needs and wants more effectively during everyday interactions. This could enable parents to arrange the environment to facilitate communicative attempts and interactions at home, which was a need expressed by both professional and parental participants in this study, and agrees with previous caregiver feedback regarding service delivery settings (Guler et al., 2017; Kathard & Pillay, 2013).

4.5.2. Sub-theme 2: Identifying intervention partners

During both the semi-structured interviews and focus group discussions, it was clear that both parents and professionals were willing to implement an intervention such as EMT, although clear concerns regarding the availability of parents as interventionists were raised:

"My negative part is…the cultural use of toys. I think children might be able to use it, but I wonder if the parents, in their culture, their method of play is not the same as ours [therapists']."

(SLT 1; translated)

"I know a lot of parents work during the week so I think it must just be a willingness from the parents and the therapist to make those opportunities to do the EMT therapy techniques…"

(SLT 3)

"What often happens is… we have families coming and today is the grandmother bringing the child, and the next time it's the neighbour bringing the child…so it's very difficult to try and train a parent in how to be doing these things at home."

(SLT 5)

"I mean, one of us would be available, you know, at all times. It might not be both of us at the same time, but we could take turns?"

(FG 1; P 4)

"I think, from both of us, we are more than prepared to do it. Any parents would want to do it; anything to make things easier for them [children] and so they feel more comfortable to say to you: "I need this."

(FG 1; P 3)

The identification of intervention partners to be trained in EMT is a pivotal component in order to support a role release from the clinical training environment into an individual, home-based context with a trained role model. Parents indicated that it is sometimes difficult to assign only one person to conduct the intervention due to their availability. As one parent mentioned, himself and another caregiver were initially at home with the child during the day, but both persons currently have work commitments that would affect their availability to consistently attend EMT sessions with his child and receive training on how to implement EMT with his son. However, it is clear that they are willing to learn how to conduct EMT at home with their child.

Professionals agreed with parents' concerns regarding caregiver availability. It was found that the same adult is not consistently able to bring a child for intervention in a clinical service setting. As a result, both parents and professionals highlighted the need to ensure caregiver availability in order to support the optimal training and sustained implementation of EMT between all interventionists involved.

4.5.3. Sub-theme 3: Training and implementation requirements

Participants highlighted concerns regarding time constraints, and required information regarding how to be trained to implement EMT:

"I would definitely want to know like time based. I think it mentioned something like 10 hours or 10 sessions or something so, what is the average time that you would

need to obviously, yourself to be trained, and then the caregiver to be trained and all of that, because that's also a big thing in government sector…. currently I'm working for public and I work in the government clinics in 4 different clinics, at this stage… Basically, just because I don't have one office. I travel around so, I have to take all my stuff with me."

(SLT 5)

"I think it would be nice to know how you can train parents that do want their child to be bilingual or do want to use multiple languages, how they can use this technique in more than one language. Would it be possible? Would it be something that they can explore?"

(SLT 3)

"It [our availability for training] also depends on the platform. It would be difficult to commit to attend a session in the evening once in two weeks, for example…I think, what's important, is to have that interaction with you…I think it's also important to do that electronically…that there's a system that allows people to do the best they can according to their times."

(FG 1; P 3)

"We try to bring in what was shown there [in therapy] every day, but I think if we just know which moments are right, that would help a lot."

(FG 1; P 4)

"It's always difficult, you know. I think what's often difficult, is to not have a framework in your head of "when can I, and when can I not". To find something which can fill in the gaps of "what am I seeing"."Is what I'm seeing a good time [to try communication/interaction] or a bad time"…just makes it a bit easier at home."

(FG 1; P 3)

Professional indicated time constraints with regard to EMT training, and suggested that web based training methods might be one strategy to overcome these challenges. Parent participants also echoed professionals' concerns regarding training requirements in EMT, especially with regards to the consistent availability of specific individuals to be trained. Literature indicates that, in order for a family member or

communicative partner to be trained to implement EMT strategies to acceptable fidelity levels, this person(s) would need to be available to attend approximately 25 hours of training (Roberts & Kaiser, 2012), which may pose challenges within a resource-limited context such as South Africa. By including individual families and the resources available within each individual household to train parents and/or SLTs in EMT, it may be seen as a more responsive naturalistic communication intervention across diverse socio-economic and cultural groups, resulting in an improved fit between EMT and a diverse context such as South Africa.

4.5.4. Summary of service setting adaptations

Parents and professionals highlighted 3 areas of adaptation relating to diverse service settings. These areas included access to physical clinic settings and clinic resources, the identification of intervention partners who could be trained and would implement EMT, and the requirements in order to be trained to use EMT. In line with the adaptome framework, the issue of limited access to intervention services and service delivery settings has been foregrounded in this dissertation, as it has been found to affect stakeholders at every level of service delivery. Castro et al., (2004) highlight environmental characteristics as a specific dimension of adaptation within culturally informed research approaches. As the main goal of adaptations within multicultural settings are to create a culturally equivalent version of a model clinical intervention, consideration of the service setting demands and constraints is required as a first step in adapting interventions for the populations we wish to serve.

The implication of these findings favour a “bottom-up” approach where training is moved out of clinics and into more naturalistic contexts, such as the home. Here, professionals would need fewer resources, as they could train parents with the available resources in each household. This means they could start implementing EMT at a grassroots “bottom-up” level much faster when utilizing available, everyday household routines. In addition to working in the home context, parents are willing to be trained in the use of EMT. The use of routines already familiar to caregivers within their everyday home contexts, could potentially lessen or spread out training time, which would lessen the financial, time and transport barriers influencing access to EMT training. Professionals indicated an interest to receive additional training in EMT, however they simultaneously highlighted challenges with attending lengthy training sessions. The use of web-based training methods may be considered as an adaptation

to make EMT training more accessible to professionals. The Teach Model Coach Review (TMCR) framework used in EMT training (Roberts et al., 2014) has the potential to be used in distance training models.

4.6. Source 2: Mode of delivery adaptations

The second source of adaptations within the adaptome framework relates to the mode of intervention delivery. The mode of delivery comprises the format of the intervention sessions and the frequency of intervention sessions (Chambers & Norton, 2016). Adaptations to the mode of intervention delivery in EMT may help professionals to target appropriate EMT goals and activities, as well as ensure support for the continuation of these goals into the child's home contexts, by identifying appropriate opportunities to practice communication. The "catchphrase" excerpt chosen for this area of adaptation is presented below:

> *It might not be appropriate at home for the mum to be playing with the child because maybe everyone might think, like what's happening? This isn't what we usually do. – SLT 5*

In this study, a total of two (2) sub-themes related to *mode of delivery adaptations* were identified, namely: *creating opportunities to communicate* and *participatory learning activities and therapy materials*, which will be outlined below:

4.6.1. Sub-theme 1: Creating opportunities to talk

EMT is based upon six key strategies, which are embedded within naturalistic, play-based routines (Kaiser, Roberts, & Balkom, 2013). Professional and parent stakeholders provided insights regarding the acceptability of EMT's naturalistic approach to determine which everyday opportunities to focus on for communication practice, as well as their perceptions regarding the use of play-based activities or everyday-routines as the mode of intervention delivery:

"Look the, we are play-based, we use toys in what we do, we're on the carpet, we play with those types of things. Yes, our children know this. I think they identify with this (toys)."

(SLT 1)

"The more they [parents] can create a natural environment and communicate with their children and expand on their children's utterances, the more the child will benefit."

(SLT 4)

"I'm very sensitive to how my child is approached in sessions. This makes me happy because I like the sessions and it is still, it fits in with what I have already learned on courses."

(FG 1; P 1)

"It's so exciting to know that I can learn to give him the control in certain things, you know. To put the scenario in play and then just leave him to start doing something."

(FG 1; P 3)

Professionals from both the private and public sector indicated that they currently make use of play as the mode of intervention in therapy, to some degree. However, professionals within the public sector indicated that children's environmental exposure to play with a wide variety of toys varied significantly. Professionals within the private sector indicated that children regularly seen on their caseloads should have access to the types of toys shown. However they acknowledged that some parents needed coaching on how to use play to facilitate communication interaction, which affected training times for intervention in the home contexts. Professionals therefore saw the value of embedding EMT in functional everyday household routines when working with children with developmental disabilities.

Parent participants in this study were familiar with the recommended use of play-based intervention strategies to facilitate engagement and interaction with their children. It was found that all the participants had previously been exposed to allied-health interventions (such as Occupational Therapy or Speech Therapy) before participating in this study. However, parent participants still felt uncertain about facilitating engagement and interaction in play activities, as well as how to choose appropriate toys to keep their children interested and engaged in play routines. Parents in this study also showed a strong preference towards the use of everyday routines in EMT intervention versus structured play activities as the mode of intervention delivery. It was reported that routines were felt to be a way to empower parents, and that routines could provide children with control in communicative interactions.

The strategies outlined in EMT were in line with those currently used by professionals, but both parents and professionals especially highlighted the ability to scaffold these strategies as a facilitator in EMT implementation. In this way, it was felt that intervention would be individualized on the basis of the child's interest rather than unfamiliar play routines, thereby supporting an individualized, naturalistic approach to supporting expressive language development. Within a home context, the use of available materials to create language learning opportunities were found to be facilitating considerations in the use of EMT within multicultural and/or multilingual intervention contexts. Using this "bottom-up" approach (i.e. implementing EMT in naturalistic environments such as the home) and adapting the mode of EMT delivery in this way could support effective language development, whilst still being sensitive to cultural differences in the home and community settings.

Due to the naturalistic nature of EMT, it can be easily adapted to various intervention settings, including diverse clinic and home settings. However, culture-specific challenges such as traditional beliefs and incorporating familial cultures in intervention have been reported by caregivers in previous studies (Guler et al., 2017) and cultural difference such as the provision of choices and autonomy in play interactions may not be typical in all cultural groups (Peredo & Kaiser, 2016). It is therefore important to consider the cultural use and familiarity with play, as well as the cultural appropriateness of play as the mode of intervention delivery when adapting EMT across diverse service settings, which is considered in more detail under the cultural adaptations section.

4.6.2. Sub-theme 2: Participatory learning activities and therapy materials

The second sub-theme within this source of adaptations was the choice of learning activities and therapy materials. Participants identified factors such as the availability and familiarity of toys within diverse socio-economic and/or cultural groups, as well as how to use individual child interests to facilitate language learning within home contexts:

"This is very play focussed so… it might not be appropriate. But I'd always ask the parent, 'what do you have at home?' And sort of try and work more towards that so, a lot of the times the play activities we do are more like feeding and playing with maybe

a baby doll and pretending to cook food. Things that are a bit more appropriate than just playing with maybe just cars or something like that."

(SLT 5)

"So what I do is I always have the parents in but then with me, and I am always shifting between demonstrating or doing it with the child and then facilitating when I ask the parents to do it with the child, so that they have a sense of the right way of going about it without needing help to immediately interact with the child and then I hope and pray that it continues at home the way that they did it at in therapy."

(SLT 2)

Give him a real hammer, give him a spade. He's not interested to play the games. I can tell you. He won't sit there and play with us. We can come outside and play with him, yes. But then he's going to move from here to there constantly."

(FG 2; P 2)

"When we are at home, then I will take the macaroni and the strainer, and then we start doing it. He will start being interested. So, it can be something… You don't need to pay someone else. It's something that you can use… Or you have the plastic knife while the mother is chopping, then also the child is chopping on the other sides. That's what helps me."

(FG 2; P 1)

Parents reported their children were not always interested in certain types of toys, or perhaps did not engage with toys frequently, and that their children were less inclined to engage with others during play activities. Parent and professional participants highlighted child engagement as a concern, as it may exclude children from receiving communication intervention in cases where children do not respond to provided materials. Therefore, the use of traditional play activities and toys as therapy materials to support communicative development would need to be reviewed for each family based in part on the effect of acculturation, and the child's level of engagement. One of the professional participants stated:

"It's very difficult because it's what people have access to… because then it's difficult to get a home care continuing if the material I was using in my session is not accessible in the parents' home to elicit the same response"

(SLT 2)

Parent participants in this study reported that the use of toys in EMT, whether readily available or not, might not be familiar or of interest to their children, and therefore would not be an appropriate mode of intervention delivery. Furthermore, participants were able to report that the concept of play differed markedly between individual families, where some children engaged significantly more when technology was used to support communication, whilst others only engaged with functional objects (such as a ball or a spoon) that were already familiar to them. The use of everyday occurring items rather than traditional Western toys to facilitate play-based language learning is supported by caregiver feedback in the study conducted by Guler et al., (2017). Caregivers mentioned that, if play had to be used as the mode of intervention delivery, therapeutic toy-based materials could perhaps be replaced with readily available, local materials if the children were developmentally and behaviourally able to engage in more structured play-based activities.

4.6.3. Summary of mode of delivery adaptations

These findings indicate that SLTs felt familiar and comfortable with the strategies used in EMT, and felt that the strategies could be useful for at least some of the families on their caseload. The abovementioned excerpts indicate that professional participants are currently implementing play-based interventions to varying degrees within their respective service delivery settings. However, there was variation amongst professionals from the private and public sector .Professionals within the private sector felt that most families on their caseloads would have access to the types of toy sets used within EMT in their home environments, and stated they frequently used play-based activities in therapy. However, professionals in the public sector tended to favour everyday activities above play-based activities, as everyday activities were felt to be more accessible to families.

Parents were also positive towards the strategies contained in EMT as they felt these would be easy to learn. Parent participants especially identified choice-making as a strategy that they would be comfortable to implement in the home setting almost

immediately. Parents felt it would be a way to improve their children's confidence and that they could use this strategy irrespective of their child's current level of engagement. Parents reported anxiety about certain characteristics of their children's disabilities, which makes it difficult for them to choose appropriate activities to practice communicating with their child. Parents in this study reported feeling that although they were currently able to identify opportunities where they could engage their children, they still felt unsure how to initiate and maintain these interactions. However, parents requested additional information on how they could meet the child at their level of engagement, and use routine or play to scaffold this engagement in support of language learning. It is clear from these results that professionals need to be mindful of both children's and parents' needs when deciding on materials and strategies to facilitate and support expressive language development.

The first two sources of adaptation resonate most closely with structural access barriers, where access to intervention settings and services, as well as access to familiar activities and materials and strategies were discussed. The next two sources of adaptation resonate more readily with cultural barriers in service delivery, where interventions need to be sensitive to the diverse cultural groups it wishes to serve, as well as be aware of accompanying family concerns, stigma and diverse cultural and/or linguistic parenting practices in the provision of appropriate and applicable communication interventions. These two sources will be further explored below.

4.7. Source 3: Target audience adaptations

Within the third source of adaptations, considerations regarding the responsiveness of EMT to individual needs, the presence of co-morbidities and individual family dynamics were addressed. In order for an intervention to be responsive, it has to fully consider the capacities and needs of individuals and organizations tasked with implementing the intervention (Damschroder et al., 2009). Therefore, in order to support the dissemination and implementation of an intervention such as EMT within diverse clinical service settings and home contexts, considerations regarding the diversity of target audiences receiving EMT training was required. Participants in this study especially highlighted sustained parent-professional collaborations as a primary need in the provision of sustainable communicative interventions. The "catchphrase" excerpt chosen for this area of adaptations was:

This EMT programme needs to empower and upskill you, because you, you learn the right ways and you don't have 1 hour a week, you have 50. – FG 1; P 4

A total of three (3) sub-themes related to *target audience adaptations* were identified, namely *parent-professional collaboration, family dynamics and priorities* and *resources.* Each sub-theme will be presented and discussed below:

4.7.1. Sub-theme 1: Parent-professional collaboration

Participants from both the semi-structured interviews and focus group discussions highlighted partnerships between communication interventionists as an important factor to support the implementation of EMT intervention. The importance of partnership is highlighted in the excerpts below:

"I think the only big challenge would be caregivers, like finding one caregiver who would actually be doing this with a child because what often happens and that I see is we have families coming and todays is the grandmother bringing the child, and the next time it's the neighbour bringing the child, then it's that one bringing the child so it's very difficult to try and train a parent in how to be doing these things at home."

(SLT 5)

"Parents won't necessarily be able to immediately obtain all the therapeutic toys that they see you using in the session. And maybe they want to use the same types of things but they don't necessarily always have that…especially within the public sector…Unless the therapist and the parent could work together in finding other ways or other things to use and not necessarily expensive toys and so on."

(SLT 3)

"In the beginning stages and I think it's important to touch on that [pragmatic skills] as well, that in the beginning stages the response of the child might not be…but, when a child is comfortable with you, they are then able to respond in a favourable manner."

(SLT 2)

"Often, you have to engage him. By going to him, but then you try and what, what do you do now?"

(FG 1; P 3)

"It's a bit of a light that's gone on for me, you know. I think we could do much more. Give independence to a child when you wait for a cue, or when he does something…"

(FG 1; P 2)

The data obtained in this study outlined both parents' and professionals' need for collaborative intervention practices. This can be seen in the parent excerpts above, which indicate that parents might be aware of what to target in intervention at home (e.g. engaging a child), but still feel unsure as how to accomplish this ("what do you do now?"). Furthermore, the excerpts indicate that professional-parent collaborations address both the pre-linguistic and linguistic targets in intervention. This can be seen by professionals targeting pragmatic skills such as joint attention and turn-taking skills in order to improve child engagement. In order to support the sustained implementation of EMT across the clinic and home context, it is important to collaborate with parents regarding the necessary prelinguistic skills, such as joint attention and waiting for the child to take a communicative turn when cued by the parent, in support of expressive language targets. This is supported by literature where caregivers have been found to be capable of providing the linguistic models required to support children's language development (Hammer, Davison, Lawrence, & Miccio, 2009; Hoff et al., 2014 as cited in (Peredo & Kaiser, 2016). However, although this study was conducted in naturalistic environments, it was still found that parents had difficulty in learning multiple strategies simultaneously during structured training and novel activities (Peredo & Kaiser, 2016). Professionals in the study agreed that parent-professional collaborations were an important factor to the successful implementation of communicative intervention outside of the clinical setting. Previous literature agrees with these findings, indicating that caregivers are able to skilfully implement early intervention strategies if provided with the necessary training and support (Dunst, Trivette, & Raab, 2013). Research about professional help-giving practices indicates decreased parental stress after being trained as interventionists (Stahmer et al., 2017). In contrast, previous literature indicated that of the 79% of studies reporting on the fidelity of parent implementation, only 29% reported on practitioner's fidelity when training parents (Lieberman-betz, 2015). It is therefore pivotal that professional-parent collaborations are foregrounded during EMT training, and sustained throughout EMT intervention in order to support

the implementation of EMT as an effective, acceptable intervention for all trained intervention partners.

4.7.2. Sub-theme 2: Family dynamics and priorities

Participants were able to report on the diverse family dynamics and routines, both within therapy settings and within the home environment:

"Like if it's a mum, who is a single mother and she has 4 kids…It's [intervention services] not something that's as important because they need to focus about getting food on the table. There are some factors, but I think it really is just something that just depends on the family and it depends on the parent."

(SLT 5)

"Because I think what is lacking, especially in this context, is a fear from the parents side on behaviour and managing it and so in my intervention I have to start with the shaping of a communicatively available behaviour."

(SLT 2)

"He doesn't have fear. No fear. That is my biggest…That's window's open, and he wants to go out there… I can't go anywhere without having him physically attached to me. If he's not…"

(FG 2; P 1)

"He doesn't really play with other children or he doesn't really need to communicate…he's all on his own with us."

(FG 2; P 2)

Because you know, they played at school, they get tired. Even after school they played, and then they have to bath and then… After supper, they are tired. They want to sleep."

(FG 2; P 3)

"I will need some information, because my child is too frail. So, sometimes he can go [with] whoever he meets. They [doctors] said that kids with [this] syndrome are too friendly, so we need to teach them…to differentiate people."

(FG 2; P 4)

"I come late home. Her mother also is coming from work. She is very tired. To focus a lot to [child's name] must do that… His homework, it was little bit difficult for us."

(FG 2; P 3)

Professionals within the private sector reported a potential barrier to sustaining parent-professional collaborations due to the increase in school-based therapy which results in limited contact time to train and teach parents as intervention partners. Professional participants highlighted the need for additional information regarding EMT training and implementation, in order to assess which families they could potentially train in EMT whilst maintaining sensitivity to diverse family dynamics.

Parents expressed concerns about their children's limited awareness of danger when playing with real items such as hammers and spades, or when exploring new environments. Parents are therefore concerned with keeping their children safe and close by, and this may also be indicative of a child's level of potential engagement. In order to address these family-specific concerns, parents expressed a preference for the use of everyday, individualized routines in intervention. In previous studies caregivers also showed a strong preference for in-home interventions as professionals would be better able to understand individual home and behavioural challenges (Guler et al., 2017). Certain families were found to prefer more structured table-top activities to engage and interact with their children (Peredo & Kaiser, 2016). In-home intervention also provided families who could not sustain dependable transport with the opportunity to participate in training, bridging "top-down" structural access barriers through a "bottom-up" approach to inclusion and provision of intervention services in a more accessible location. These findings highlight the need for improved professional-parent collaborations in order to address the concerns of the family, identify the most functional strategies to facilitate interaction and language learning according to the child's interests where safe to do so, and provide flexibility regarding the use of materials which should be individualized within diverse home contexts.

4.7.3. Sub-theme 3: Resources

Given the established socio-economic challenges faced within South Africa, the topic of resources and resource-constraints were one of the primary concerns raised by both professional and parent stakeholders in this study. Resource constraints related to

organizational and individual finances, time, caregiver availability and limited access to traditional toy materials were highlighted within this sub-theme. We have placed resource constraints under target audience adaptations because of the large number of South African children who are growing up in poverty without access to early education or intervention and the remaining structural inequalities in the provision of health care services to the majority of South African children. The excerpts below highlight some of these constraints

"I could very easily use my salary to equip my room and all of that, but that's not necessarily the best way forward because I'm always leaning towards changing the administrative bodies in the system… I don't know, for some reason it's just easier to put up a wall for the physio or a stretch band for the OT versus a puzzle for instance for us or any number of other things."

(SLT 2)

"I try to give them examples that they can use in everyday life, because I think everyone is busy."

(SLT 1)

"I don't have one office. I travel around so, I have to take all my stuff with me so it's very difficult to have a wide variety of things for the child to choose from. I might sometimes have 3 different things that they can choose from but it's not like, as many [as shown in EMT]."

(SLT 5)

"Time. Because you would only be able to give him, most probably, even if it's in that normal household setup, probably a hour before bath time or something like that. Because after bath time it's finished."

(FG 2; P 1)

"Money is an issue. It's a reality, you know, not everyone can afford this."

(FG 1; P 1)

Professionals within the public sector mentioned resource constraints such as training timeframes and obtaining organizational funding for costs involved in EMT training as additional potential barriers to EMT training and implementation. Interestingly, professionals in the private service sector were not as concerned with the cost of

training. This may be explained by the socio-economic environment in South Africa, where public sector resources and access to funds are extremely limited, whilst private professionals may actively seek out evidence-based programs in order to improve the quality of service provided in light of limited contact time and in-line with evidence-based practice.

Professionals were also concerned that transport costs and frequent travelling might be an additional barrier, both for them to implement EMT in a variety of settings and for caregiver participation. Financial implications related to the purchasing of toy sets for the therapeutic environment, as well as space limitations could affect their ability to implement EMT successfully and sustainably. Parents also reported various resource constraints as a barrier to intervention implementation. Time and financial constraints were mentioned by multiple participants, although parents clearly stated their willingness to address these constraints to benefit their children wherever possible. Previous literature support these findings, and state that parents who choose not to participate in intervention report time and physical barriers to accessing treatment as primary concerns (Ortiz & Vecchio, 2013). However, parents reported the interrelationship between family dynamics and resource constraints as an area of concern. Caregiver work commitments, caregiver availability, and their children's behavioural challenges affected their ability to engage in intervention at home. Previous research supports these findings, where location of treatment and cost of treatment were identified as two prevalent issues by caregivers (Guler et al., 2017). Professionals are already adapting their activities and materials used in therapy to accommodate families on their caseloads. As one professional participant in this study highlighted:

"It's always a good idea to have thought of a type of way to do the same types of things you do in therapy at home so that it becomes more natural for the child…And I think in this way, parents can do it at home, even after you have stopped the therapy, or even funds has meant they had to stop therapy, they can continue with it at home and the child can still be able to progress."

(SLT 3)

4.7.4. Summary of target audience adaptations

The abovementioned results provide some examples of family dynamics and priorities found in families within a diverse context such as South Africa, as well as some resource constraints experienced by families and professionals in certain settings. The establishment of strong, sustained professional-parent collaborations, as well as consideration regarding individual family routines and dynamics were noted as aspects which would facilitate EMT implementation. Resource constraints were reported across all service settings and within both stakeholder groups, highlighting this as a potential barrier to EMT implementation within the area of target audience adaptations. Previous literature aligns with these findings, and reiterate the need for consideration of professional and parent resources in interventions (Kathard & Pillay, 2013; Ortiz & Vecchio, 2013). Careful consideration of the target population, as well as the milieu within which the population is located will be required in order to ensure EMT is seen as applicable within a multicultural and/or multilingual context such as South Africa. This is supported by findings from Guler et al., (2017) where caregivers felt that professionals should have an understanding of diverse beliefs and practices, and consider these when deciding on intervention goals, mode of service delivery and parent training activities. The findings indicate that although structural barriers to accessing services are well documented, there are a multitude of additional factors in play in the provision of sustained intervention within diverse contexts. Many of the aspects categorized under this sub-theme have been reported in previous literature (Castro, Barrera, & Martinez, 2004; Guler et al., 2017). Both professional and parent participants in this study reiterated the need to for increased sensitivity of cultural beliefs and diverse family practices when establishing functional language targets in diverse target audiences.

4.8. Source 4: Cultural Adaptations:

The fourth source of adaptations relates to cultural adaptations, and includes considerations regarding cultural sensitivity, the imagery used and how consistent an intervention is with the particular belief system of its participants (Chambers & Norton, 2016). Language can be defined as a culturally-based phenomenon (Mdlalo, Flack, & Joubert, 2016), and therefore adaptations to interventions, specifically the intervention materials and targets may be required in order to encompasses the various multilinguistic and/or multicultural belief systems and practices of the South African population. In this study, participants were asked to provide insights into possible

cultural adaptations that might be required in order to improve the feasibility of EMT in South Africa. The “catchphrase” excerpt used to summarize this source of adaptations was the following:

> *It’s difficult for them [parents] to translate what you’ve said in English with their child, in their home language. So that is definitely a big factor is the language, especially because it’s about communication. It’s so much easier to show a mum something physical like you’re trying to put up a child’s hands, but now you have to explain to her how to communicate with her child and it’s already a different language. – SLT 5*

A total of two (2) sub-themes related to *cultural adaptations* were identified, namely *multilinguistic intervention targets* and *diverse parenting practices*. Each sub-theme will be outlined below:

4.8.1. Sub-theme 1: Multilinguistic language targets

The researchers asked SLT participants to provide insights regarding the multilinguistic and multicultural language targets used within their diverse service settings, and within households seen on their caseloads. The key insights are provided in the excerpts below:

“I think I try very hard to maximise my time during this whole session, to kind of get as much information as I can out of the caregiver in terms of the language exposure, what are all the languages they are exposed to? Okay, what are all the different dialectical differences because in Xhosa even there’s different dialects, so I need so I need to be mindful of that.”

(SLT 2)

“Well it is usually also mama, papa, nee, ja, those are just the usual words that English children also learn. I do think in many Afrikaans households it is super important to have manners from a very small age. So I think a lot of Afrikaans children learn to say asseblief and dankie before anything else… and then basically the easiest action words as well… So also the basic action words they would also learn first such as jump, run. I think action phrases, like noun, action word; noun,

verb; subject, verb, I think that's the easiest for them to learn. And after that, some children are quite quick to learn prepositions as well."

(SLT 3)

"I speak to [child] normally in Afrikaans. Some words it's just, like, Afrikaans, and… But most of his, the three-letter words, that mostly is English. Even here, there, is Afrikaans, or Pedi, or like that."

(FG 2; P 2)

"We used to communicate to his mother's language, Xhosa, and English. But my home language, Lingala, around… Because I know his situation, around him I must mind myself too much language[s]."

(FG 2; P 3)

Professional participants reported that they targeted single-word language targets in Afrikaans and/or isiXhosa similarly to how they would target these expressive language targets in English. Professionals reported that nouns, verbs and verbal requests were their primary targets when commencing therapy with young children with developmental disabilities. However, professionals did not agree on the early-developing semantic relationships they would target with a multicultural and/or multilingual individual, where some SLT's preferred to move towards subject-verb phrases, function words and hereafter subject-verb object phrases. One SLT highlighted the fact that English can be broken down into single words, whereas these words could be embedded into a phrase or sentence in a language such as isiXhosa. Another SLT highlighted that manners and prepositions seemed to be early expressive language targets within Afrikaans-speaking households, whereas articles were mentioned as an early expressive language target in Afrikaans by one participant. This indicates that professionals have different opinions about which the early linguistic forms they should be targeting in therapy. These diverse findings could be due to the limited normative data regarding expressive language development in languages other than English. Maphalala, Pascoe, & Smouse, (2014) reports limited normative data within isiXhosa, and another study by Potgieter & Southwood (2016) outlines the limited availability of language assessment batteries and intervention programmes apart from Afrikaans and South African English. This is further supported by Van Dulm

& Southwood (2013) who found that 57% of SLT respondents required additional language therapy material in Afrikaans, and 33% required materials in an African language. It is therefore clear that professionals require additional support in order to identify early language targets which are appropriate for multicultural and/or multilingual children with developmental disabilities.

In a previous South African study, caregivers cited language as a primary contextual factor when considering cultural adaptation (Guler et al., 2017). The interconnectedness of language and culture in intervention is especially evident in South Africa, with eleven officially recognized languages. Within the Cape Town area, Afrikaans is reportedly spoken most (41%), followed by isiXhosa (28%) and English (27%), with the remaining 4% reportedly speaking either an Nguni- language or a foreign language (Statistics South Africa, 2012). Within this source of adaptations, participants identified factors related to both multilinguistic language targets, as well as the diverse parenting practices seen within multicultural South African households. Careful consideration of individual family beliefs, cultural factors and multilinguistic environments are required in order to support the fit of EMT across different cultural and multilinguistic settings, including the clinical, school and home contexts. This will be further explored below.

4.8.2. Sub-theme 2: Diverse parenting practices

In order for EMT to be viewed as a naturalistic intervention within the South African context, the researcher asked participants to provide insights into the diverse parenting practices found within multilinguistic and/or multicultural home contexts in South Africa. In order to potentially adapt EMT within individual home contexts, it is important to consider all members of the family, as well as culturally-specific parenting styles, and the optimal way to support engagement between the child and other members of the family. This can be seen in the excerpts below:

“Or, I’ll always ask about, mum maybe does bring the child but the mum works full-day and she’ll be like ‘I’ll ask.’ What do you do after work when you get home?’ And then it’s basically, ‘we feed the child and the child goes to bed.’”

(SLT 5)

"The culture practice at home in terms of communicating with kids because that then is very important as well. If it's a be seen just not heard kind of situation then you know, there's no integration. What I need to do in terms of educating the caregiver and emphasising that that needs to change if you want to see any progress because we are trying to get them to talk. I think it's important also to add to that is the fact that in this context, our kids are not necessarily used to toys at all anyways."

(SLT 2)

Consideration regarding diverse parenting practices and preferences towards activity-types and culturally appropriate strategies may support the feasibility of EMT within diverse South African families. One parent affectionately explained how his child's interests would need to be included in intervention, and how he viewed his son as no different than any other typical-developing child with interests typical of most young boys:

"…Give him a spade. A real spade, don't give him a play spade or those kinds of things. He wants a power drill, a real drill. Skoon 'n oke. [what a guy!]"

(FG 2: P 2)

4.8.3. Summary of cultural adaptations

The limitations in accessing culturally and linguistically appropriate services has not only been documented in South Africa, but also internationally (Kathard & Pillay, 2013; Verdon et al., 2014). Multilinguistic language targets and diverse parenting practices were identified as two sub-themes within the area of cultural components requiring consideration in EMT adaptation. Parent participants in this study mentioned multilinguistic exposure, either within the home environment and/or within community, social and educational settings. The majority of parent participants however stated that they communicated to their child(ren) with developmental disabilities in a single language, despite multilingual exposure within the home. This is supported by findings from Guler et al., (2017) who conclude that caregivers most frequently reported English as the preferred language for intervention, although some caregivers felt intervention should be conducted in the child's home language to improve active community participation in future. The use of English as the preferred language of intervention may also indicate the far-reaching effects of predominantly monolingual professionals

conducting interventions with multilingual populations in a single language, such as English (Kathard & Pillay, 2013).

Professional participants in this study reported their caseloads were culturally diverse in both the private and public service sectors and have therefore attempted to informally adapt their therapeutic approach and materials to be more representative of multicultural and/or multilinguistic family characteristics. Awareness of multilinguistic language development is of utmost importance to support the choice of appropriate and functional expressive language targets (Pascoe & Norman, 2011). Despite this, professionals provided differing views on appropriate early language targets for bilingual English-Afrikaans and English-isiXhosa speaking children. Some professionals indicated that they followed the same clinical reasoning when choosing targets irrespective of the language(s) spoken by the child, however other professionals pointed out that diversity amongst cultural beliefs (that of respect for elders) and linguistic rules (such as the absence of pronouns in isiXhosa) meant that they individualized their choice of language targets. These diverse findings could be due to the limited availability of normative data regarding expressive language development in languages other than English. Maphalala, Pascoe, & Smouse, (2014) report limited normative data within isiXhosa, and Potgieter & Southwood (2016) outline the limited availability of tests to determine language abilities of children who did not speak Afrikaans or English at home.

4.9. Summary of key findings: EMT as an applicable, responsive intervention in SA

The culmination of all identified themes into an overarching message is referred to as a plot (Polkinghorne, 2005). In this study, the plot summarizes EMT as a responsive intervention in multicultural and/or multilinguistic contexts such as South Africa. Bilingual SLTs and parent stakeholders in this study expressed a need for certain adaptations to EMT in order to make the intervention both acceptable and applicable within a context such as South Africa. This is supported by findings from Damschroder et al., (2009) which states that without adaptations, interventions may be resisted by those it was meant for as it may be viewed as a poor fit when introduced in diverse service settings, without consulting stakeholders.

Social capital refers to the quality of connections formed between stakeholder groups to achieve a shared vision (Damschroder et al., 2009). These connections and

relationships may be pivotal in contributing to the successful implementation of an intervention as it fosters a sense of "community" across multiple levels of service delivery (Damschroder et al., 2009). Adaptations to the peripheral elements of an intervention in a consultative manner with stakeholders may improve intervention implementation in diverse service settings, especially if these adaptations address the concerns identified by stakeholders. One of the professional participants in this study aptly summarized the barriers, and potential areas for adaptation within a context such as South Africa:

"I think I've mentioned a lot about, obviously, the material which would need to be adapted. I think you would really have to look at the child's environment and identify a caregiver…So, you would have to, instead of just assuming that the mother would be your parent involvement, it would be important to first evaluate the family…You would definitely need to just look at the family, look at the setup then identify someone in the child's life who'd be able to carry on and do this at home."

(SLT 5)

It is clear that South Africa is not only faced with structural barriers to intervention access, but that cultural diversity also compounds the delivery, and sustained provision, of appropriate naturalistic interventions. In order to enhance the applicability of EMT in South Africa and monitor the necessary adaptations to support applicability, additional research about and sensitivity towards multicultural and/or multilingual parent-partnerships, family routines, dynamics and priorities and resource allocation in diverse service settings is urgently needed. The use of the home as an intervention setting, and the use of everyday routines rather than play as the mode of intervention delivery have been highlighted as important adaptations by both stakeholder groups in this study. This may be due to perceptions that parent involvement in play may differ across cultural and linguistic groups. Alternatively, this may be attributed to the fact that parents experience time and financial resource constraints when accessing clinic-based services, or that children may be more comfortable in their home environments compared to clinic environments. These findings support the use of natural home environments to support language learning (Kaiser & Roberts, 2011; Woods et al., 2011). Based on the findings of this study, it is evident that careful consideration and continued engagement with various stakeholders is required to improve the overall fit

of an intervention such as EMT within a diverse multicultural and/or multilingual context such as South Africa.

4.10 Conclusion

This chapter has presented the findings obtained from bilingual parent and SLT stakeholders who participated in focus group discussions and semi-structured interviews. Stakeholders viewed EMT and its core components as appropriate within a diverse context such as South Africa. However, both parents and SLTs raised concerns regarding the acceptability of the peripheral components of EMT within a multilinguistic and/or multicultural context such as South Africa. These concerns were categorized within the four sources of adaptation as found within the adaptome framework (Chambers & Norton, 2016). Parent and professional stakeholders in this study identified various possible adaptations to EMT service settings, mode of delivery, target audiences and cultural components which would need careful consideration to support the implementation of EMT as an applicable expressive language intervention in South Africa.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS:

5.1. Introduction:

In South Africa, the socio-economic history and resultant inequalities in access to health care services are well documented and continue to affect service provision (Kathard & Pillay, 2013b; Pascoe & Norman, 2011). Structural barriers, such as limited resources and facilities affect parents' ability to access intervention services, with overburdened professionals being unable to provide sustained intervention to rapidly-growing caseloads (Bello-Mojeed & Bakare, 2013; Samuels, Slemming, & Balton, 2012). Along with this, the mismatch between the homogenous Speech Therapy profession and the cultural and linguistic diversity of the South African population has resulted in limited availability of culturally and/or linguistically appropriate intervention services (Kathard & Pillay, 2013; Pascoe & Norman, 2011).

Children with developmental disabilities require comprehensive early interventions in order to address all affected areas of a child's development (Guralnick, 2016; Taheri, Perry, & Minnes, 2017). Early intervention for children with developmental disabilities is proven to both decrease the severity of symptoms present across a child's lifespan, and to be more cost effective than later interventions (Guralnick, 2016; Guralnick, 2017; Nores & Barnett, 2010; Stahmer, Brookman-Frazee, Lee, Searcy, & Reed, 2011). Guralnick, (2016) states the need for interventions which are accessible, appropriate and applicable across diverse socio-economic, cultural and/or linguistic groups. In 2016, it was found that a total of 53.0 million children had diagnosed developmental disabilities, of which 94% resided in low- to middle income countries (Olusanya et al., 2018). In South Africa specifically, there is a prevalence rate of 7.5% or 2 870 130 individuals living with developmental disabilities (SSA, 2011). In South Africa, 84% of parents who are aware of difficulties in their children's communicative development, are unable to access intervention services (Popich, et al., 2006). Given the increased financial burden on families caring for individuals with developmental disabilities, and the limited access to services, we need to consider other models of service delivery which include community-based rehabilitation or outreach-based activities to homes and communities (Samuels et al., 2012).

Given the increased financial burden on families caring for individuals with developmental disabilities (Bello-Mojeed & Bakare, 2013), Naturalistic Developmental Behavioural Interventions (NDBIs) have demonstrated effectiveness and have the

potential to be implemented in community-based rehabilitation and outreach programs, provided there is sufficient training. Naturalistic Developmental Behavioural Interventions (NDBI's) incorporate a variety of behavioural elements in naturally-occurring contexts to support language development (Schreibman et al., 2015). Because of this focus on naturally occurring contexts to support language development, many NDBIs incorporate parents as interventionists to improve the quantity and quality of sustained intervention in resource-limited settings (Dunst, Bruder, Trivette, & Hamby, 2006). Particularly, children with developmental disabilities have been found to respond particularly well to the teaching of specific skills and behaviours in naturalistic contexts (National Research Council., 2001). It has been found that skills targeted in NDBIs can be generalized to other contexts (Carr & Kologinsky, 1983), and that these targets were maintained even after intervention had been completed (Thunberg, 2013).

The inclusion of naturalistic, behavioural principles in intervention has demonstrated support and growth in all affected areas of development (Schreibman et al., 2015; Wright & Kaiser, 2016), and consequently is considered an effective approach to providing intervention for children with developmental disabilities. One such NDBI, Enhanced Milieu Teaching (EMT), uses trained role models to teach new language to children within functional, naturalistic contexts (Hampton & Kaiser, 2016). EMT is a versatile and affordable intervention as it can be taught to a variety of intervention partners, and can be conducted in a variety of settings including the school, home and clinic service setting. The effectiveness of EMT has also been established across diverse cultural and socio-economic groups within a developed country context (Hancock & Kaiser, 2006). As EMT is an effective, versatile and affordable intervention (Hampton & Kaiser, 2016), it may be particularly useful in a resource-limited setting such as South Africa to support the expressive language development of children with developmental disabilities, including autism (Hampton, Harty, Fuller, & Kaiser, 2019) . However, evidence supporting the sustainable implementation of EMT within a multicultural and/or multilinguistic context such as South Africa, is currently limited.

5.2. EMT in SA: bilingual parent and SLT stakeholder perspectives

This study established parent and professional stakeholder views regarding the applicability of EMT as an expressive communication intervention in South Africa. In order to answer the research question, bilingual parents' and SLTs' perspectives were

sought regarding whether the core components, goals, strategies and materials used in EMT are appropriate and acceptable in diverse clinical and/or home settings. By examining stakeholder perspectives regarding both the appropriateness of the core components of EMT and acceptability of EMT goals, strategies and materials, the overall applicability (fit) of EMT in South Africa could be investigated. Additionally, barriers and facilitators to the implementation of EMT across diverse cultural and linguistic groups, and clinic and home contexts, were identified, which lead to the identification of potential adaptations to EMT in South Africa. These adaptations were categorized according to the adaptome framework's (Chambers & Norton, 2016) four sources of adaptation namely: service setting, mode of delivery, target audience and cultural adaptations.

Participants in this study felt that EMT is an appropriate expressive communication intervention across both multicultural and/or multilingual public and private service settings, as well as within diverse socio-economic and multicultural and/or multilinguistic home contexts. Both professional and parent participants agreed that the core components of EMT are appropriate and would not require any adaptations. Parents and professionals agreed on the importance of the primary goal of EMT, which is to t support the expressive language development in children with developmental disabilities. One parent stated:

"His grandfather said: You know what? God can take me away. I just want to have a conversation with [child's name]."

(FG 2; P 2)

Parents and professional stakeholders recognize the value of EMT and most indicated the willingness to learn more about how to implement the intervention. This agrees with previously published stakeholder views which highlight a willingness of caregivers to be trained in naturalistic interventions (Guler et al., 2017). The implementation of naturalistic interventions such as EMT, when adapted to be applicable to diverse populations, could help to mediate some of the structural and cultural access barriers present in South Africa (Pascoe & Norman, 2011; Samuels et al., 2012), due to the ability of EMT to train multiple intervention partners and implement the intervention across diverse settings.

Using the four existing sources of adaptations provided in the adaptome framework (Chambers & Norton, 2016), a total of ten subthemes related to the implementation of EMT were identified from participant data. Within each subtheme, participants outlined relevant barriers and facilitators which they believed would impact on the implementation of EMT in their setting. Together, these findings indicate that, although EMT is seen as a potentially beneficial intervention in South Africa, adaptations to the peripheral components of EMT would need to be investigated to improve the fit of EMT intervention to the local context. Careful consideration of three interconnected milieus; namely the social, environmental and cultural milieus of individual families would be required in order to improve the applicability of EMT across multicultural and/or multilinguistic contexts in South Africa. This relationship between the four sources of adaptation (Chambers & Norton, 2016) and the three individual milieus affecting sustainable EMT implementation are depicted below:

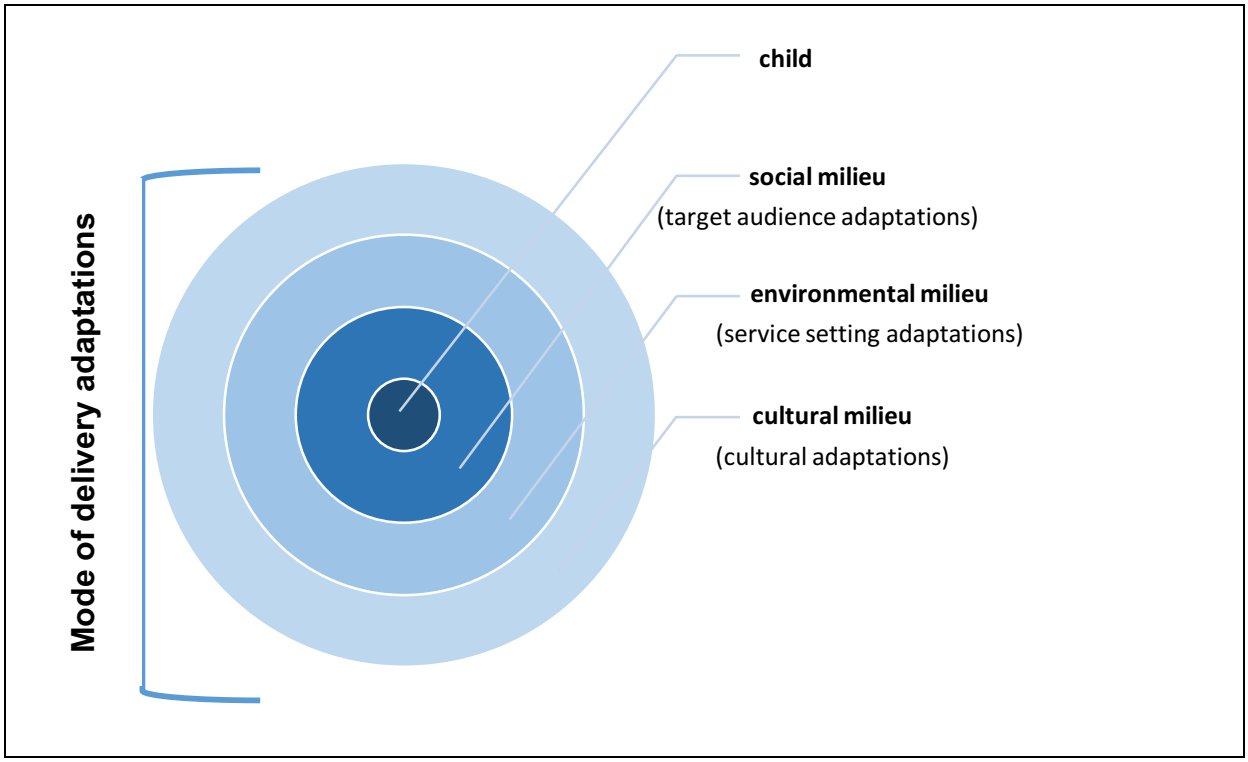


***Figure 3:* A visual representation of the four sources of intervention adaptations placed within a child's social, environmental and cultural milieus**

This figure can be used to highlight several key findings. Firstly, in a developing country context, such as South Africa, the environmental challenges (including resource distribution) and cultural challenges (including bilingualism) to implementing and

sustaining intervention services are interconnected. In South Africa, historical economic marginalization based on race continues to disadvantage over 12 million Black South African children who are living in poverty (73.6% of all children living in poverty) (SSA, 2017). The second finding indicates that understanding the cultural milieu (diverse cultural and/or linguistic beliefs) and family priorities and routines is critical for the provision of sustainable, responsive and applicable intervention services. Existing literature documents the importance of including parents in determining when an intervention will be implemented, as well as what routines and materials are appropriate (Dunst et al., 2006; Roper & Dunst, 2003; Woods, Wilcox, Friedman, & Murch, 2011). Furthermore, results from a meta-analysis of help-giving practices conducted by (Dunst, Trivette, & Hamby, 2007, 2012) indicated that the more professionals consider family needs and priorities (i.e. the more family-centered interventions were) the more satisfied parents were with the program. The third finding suggests that parent-professional collaboration is of paramount importance in applying these adaptations successfully. Through continued collaboration, parents and professionals could be empowered to select the most appropriate and acceptable mode of intervention delivery for each family, thereby improving the overall applicability of EMT within multicultural and/or multilingual home contexts. Woods et al., (2011) explain the benefits of collaborative consultation with parents in naturalistic environments and provide specific strategies which interventionists can use to coach parents. The fourth finding suggests that the adaptations relating to mode of intervention delivery may be dependent on the remaining three sources of adaptations (target audience, service setting and cultural). Deciding on the activities and materials which will be used during EMT intervention will be considerably easier if the other 3 sources of adaptations have already been considered. Dunst, Trivette, & Raab, (2014) state that determining participatory learning opportunities involves identifying family and community activities, as well as identifying child interests. These three elements overlap with the three milieus mentioned in Figure 1. Finally, stakeholder buy in needs to occur at all levels of the environmental milieu, This is in line with previous literature, which indicates that buy-in from stakeholders at all levels of service delivery are required for the successful implementation of interventions (Damschroder et al., 2009). This will allow for more effective spoken communication intervention outcomes in children with developmental disabilities.

5.3. Strengths of the study:

The following considerations can be viewed as strengths of the current study:

- There is limited published data regarding stakeholder views of NDBI's such as EMT, and even less data documenting perceptions from bilingual stakeholders. This study has added to the body of stakeholder literature by investigating both bilingual parent and SLT perspectives of implementing an NDBI within a low-to middle income country context
- The inclusion of both professional and parent stakeholders in this study allowed the researchers to obtain more in-depth data regarding barriers, facilitators and adaptations related to the research question than would have been possible if only one group of stakeholders was targeted
- The use of an existing framework, the adaptome framework (Chambers & Norton, 2016), allowed the researcher to use a combination of inductive and deductive coding to develop themes and subthemes. Inductive coding was used to identify initial subthemes within the data, and these were then refined using deductive coding in order to accurately allocate the final subthemes within the existing adaptation sources described in the framework.
- The use of methodological and investigator triangulation increased the rigor of the study and contributed towards the trustworthiness of the findings. Methodological triangulation was achieved through the use of both semi-structured interviews and focus group discussions. Investigator triangulation was achieved by using a team of researchers in each stage of the project to minimize researcher bias. The research team (consisting of the student researcher, two research supervisors, a research assistant and an independent coder) were involved in the project design, data collection and analysis process.
- The inclusion of a multilingual Afrikaans/English/isiXhosa-speaking research assistant during data collection is a strength of this study as it provided parent participants with the opportunity to communicate in their home language.
- This study recruited bilingual professionals working in both private and public health care sectors. The study also recruited families of children with developmental disabilities from both private and public schools in the Cape Town area, thereby providing more detailed data regarding the social, environmental and cultural milieus of both professional and parental stakeholders in this area.
- The use of a video examples of EMT being implemented allowed participants to see EMT being conducted in both clinic and home context. This exposure ensured that all

participants had similar understanding of EMT before answering the research questions.

5.4. Limitations of the study:

The nature of this study comprised certain strengths, such as the utilization of both semi-structured interviews and focus group discussions to obtain data. However, various limitations were also identified within the context of this study, as presented below:

- Organizational-level stakeholders were not included in this study, and therefore input regarding the challenges faced from system administrators and management officials in implementing EMT in South Africa is still needed
- This study focussed specifically on professional and parent stakeholders who were fluent in English-Afrikaans and/or English-isiXhosa. Families who speak languages other than Afrikaans or isiXhosa were not represented, and these groups may identify different implementation adaptations than those highlighted in the current study
- The limited number of bilingual SLT's who responded to the invitation for participation in this study, could be seen as a study limitation. This could be due to a limited number of bilingual SLT's who met the inclusion criteria for 3 years of experience in working with children with developmental disabilities, as bilingual Black African SLT's make up only 5% of practicing SLTs in South Africa (Kathard & Pillay, 2013a). Additionally, time constraints experienced by SLT's in public and private service settings in South Africa, may have prevented them from participating in the study. However, the researchers feel that these participants represented a sufficiently diverse number of settings to provide adequate information about implementation barriers and potential sources of adaptation.
- The small size of focus group participants in this study could be seen as a limitation. Parents were contacted via written correspondence, email and cellphone, however only those included in the study indicated they were available and willing to participate. This may be due to difficulties in arranging transport, or finding alternative caregivers to attend to the children while parents participated.

- Only a percentage of the transcripts were coded by the independent coder. However, the remaining transcripts were reviewed by the student researcher to ensure that the modifications to codes agreed to during the consensus process were implemented consistently in transcripts not coded by the independent coder.

5.5. Study recommendations and implications:

The aim of this study was to establish various stakeholder perspectives regarding the applicability of a naturalistic communication intervention such as Enhanced Milieu Teaching within their settings. Parent and professional stakeholders participated in this study, and provided qualitative input regarding the appropriateness, acceptability and overall fit of EMT within a multilingual and/or multicultural context such as South Africa. Based upon these findings, the following recommendations are presented:

5.5.1. Clinical recommendations:

The following clinical recommendations based upon the findings of this study are set out below:

- Engagement with organizational-level stakeholders regarding the availability of funds for EMT training and purchasing of materials is required in order to ensure that professionals trained to implement EMT are able to implement the intervention to fidelity.
- Coaching parents to improve their interaction with their child may work best when embedded in everyday routines. The implementation of play-based activities needs to be considered in the light of the parents' access to resources and their own willingness to engage in play with their child.
- Professionals need to partner with parents to identify the most appropriate routines and materials when naturalistic interventions, such as EMT, are implemented in the home context.
- Professionals need to partner with parents in order to better understand diverse cultural beliefs, stigma, child interests, child levels of engagement, parental fears and parenting practices and routines before implementing a naturalistic intervention such as EMT.

5.5.2. Recommendations for future clinical research:

The following recommendations for future research regarding EMT in a multicultural and/or multilinguistic context such as South Africa are presented below:

- Given time and financial constraints, the researcher was unable to pilot the proposed adaptations. Further research to determine the effectiveness of EMT within home environments (and incorporating the adaptations recommended below) is therefore needed.
- Further research, possibly using single-subject methodology, is required to determine if EMT can be implemented to fidelity in bilingual home contexts, incorporating all linguistic groups represented in South Africa. This will build on existing research indicating EMT is applicable and can be implemented to fidelity in bilingual contexts (such as Spanish-English households).

5.5.3. Recommendations for future implementation research:

The following recommendations for implementation outcomes, based upon the findings of this study, are presented below:

- As this study only presented video material of play-based activities included in EMT, further research to establish stakeholder views regarding which home routines would be best suited to teach EMT strategies in could be beneficial.
- Further research involving various stakeholders at each level of service delivery in both the public and private service sectors, is required to establish specific service setting barriers and facilitators when adapting EMT to these settings.

5.5.4. Recommendations regarding EMT adaptations in South Africa:

The following adaptations identified by professional and parent participants in this study are recommended for EMT intervention in a multicultural and/or multilingual context such as South Africa:

- EMT should occur in the home context wherever possible. Should home-based intervention not be possible, it is recommended that families be requested to bring materials (toys) from the home to the chosen service setting so that intervention can be conducted with available, familiar materials.
- The use of web-based technology, such as Skype or Zoom, to facilitate distance training may be useful in addressing training issues relating to transport and time constraints. EMT has an established model of training (Teach-Model-Coach Review)

which has the potential to be implemented using technology and a blend of local and international experts. This may also improve the reach of EMT training to parents and/or SLTs who might otherwise not be able to access EMT training and trainer-support.

- The use of play as an activity in EMT needs to be carefully considered for each family given their cultural preferences to play, their access to play materials (resource constraints) as well as the individual child's level of engagement with toys. Both professionals and parents felt that implementing EMT in everyday routines in the home, may be a viable alternative to play.
- Parents requested further information regarding the development of play and different engagement states, as well as how to choose toys and routines to maximize their child's engagement. Development of training materials to address these concerns is recommended in order to educate and empower parents as collaborative intervention partners.

5.6. Final summary:

This study has furthered the literature regarding the multiple issues affecting a context such as South Africa and has focussed specifically on these issues in the provision of communication intervention services to multicultural and/or multilingual families with children with developmental disabilities. This study has indicated that, by engaging with multiple stakeholders at various levels of service delivery, it is possible to identify barriers, facilitators and areas of adaptation which would be required to improve the fit of an intervention such as EMT within a context such as South Africa. Of particular note, is the need for both professional and parent stakeholders to collaborate and carefully consider individual family dynamics, priorities, cultural beliefs and child interests when establishing and targeting communicative intervention goals. Improved partnerships and collaborations between professionals and parents, as well as engagement with organizational level stakeholders, is required to successfully implement EMT in novel settings. This study has extended the limited literature regarding stakeholder perceptions of the appropriateness, acceptability and overall applicability of naturalistic developmental behavioural interventions, such as Enhanced Milieu Teaching. The study has also provided further clinical and implementation outcomes for future research, and highlights four areas of adaptations which will need to be considered in the process off adapting Enhanced Milieu Teaching (EMT) so that

it becomes a sustainable intervention to support the expressive communication of children with developmental disabilities in a multicultural and/or multilinguistic context such as South Africa.

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I. Appendix 1: Information letter (SLTs):

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Department of Health and Rehabilitation Sciences
Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925
Tel: +27 (0) 21 406 7667
Fax: +27 (0) 21 406 6323
Internet: www.uct.ac.za

14 March 2018

Dear Speech-Language Therapist,

Re: Potential involvement in Master's Degree Study: bilingual SLT's required who have experience in treating children with developmental disabilities who speak English/ IsiXhosa at home:

We are researchers from the University of Cape Town interested in the use of play-based, family-centred therapy to support the language development of young children with developmental disabilities. To do this, we have identified a specific intervention program, Enhanced Milieu Teaching, which was developed in America. The program uses play and natural experiences to provide children with the opportunity to learn and use language successfully.

This study is titled: ***"The applicability of implementing Enhanced Milieu Teaching (EMT) with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans/English or English/IsiXhosa at home: parent and professional perspectives."*** Ethics approval from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee has been obtained: HREC Reference Number 584/2017

The primary research question for this study is the following:

What is the applicability (effectiveness and cultural acceptability) of implementing EMT with young children with developmental disabilities, who reside in the Western Cape and speak English/Afrikaans or English/isiXhosa at home?

This research question will be answered by the following research objectives:

1. To determine the perceptions of parents regarding the degree to which EMT intervention strategies, materials and outcomes are **culturally** appropriate in the current context?
2. To determine the perceptions of bilingual speech-language therapists regarding the degree to which EMT intervention strategies, goals, materials and outcomes are **culturally and linguistically** appropriate in Afrikaans and IsiXhosa?

In order to address these questions, we require:

- Therapists who are bilingual or multilingual (Afrikaans, English and/or IsiXhosa)
- Therapists who have experience in working with children with developmental delays who come from bilingual or multilingual households (Afrikaans, English and/or IsiXhosa)

Ethical principles as mentioned in the Declaration of Helsinki (2013) will be adhered to during the study; autonomy, anonymity and confidentiality will be upheld. The study is considered to be of minimal risk to participants. All participants who meet the selection criteria will be invited to participate.

The study will comprise a semi-structured interview, which will be conducted at a venue accessible to the participants. The interview should last no longer than two hours in total.

Please do not hesitate to contact myself or the project supervisors should you have any questions or concerns.

Dr. Michal Harty (Principal Researcher)

Email: Michal.harty@uct.ac.za

Senior Lecturer: Division of Communication Sciences and Disorders

Faculty Health Science, University of Cape Town

Chevonne du Plessis (Researcher)

Email: DPLCHE002@myuct.ac.za

Student: Division of Communication Sciences and Disorders

Faculty Health Science, University of Cape Town

II. Appendix 2: Consent form (SLTs):

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Department of Health and Rehabilitation Sciences
Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925
Tel: +27 (0) 21 406 7667
Fax: +27 (0) 21 406 6323
Internet: www.uct.ac.za

20 February 2018

Dear Speech-language Therapist

We are researchers from the University of Cape Town interested in the use of play-based, family-centred therapy to support the language development of young children with developmental disabilities. To do this, we have identified a specific intervention programme that we hope to use to train parents and therapists here in the Western Cape, South Africa. The programme uses play and natural experiences to provide children with the opportunity to learn and use language successfully.

I would hereby like to ask whether you would be willing in being involved in this study, titled: ***"The applicability of implementing Enhanced Milieu Teaching (EMT) with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans/English or IsiXhosa/English at home: parent and professional perspectives"***
Ethics approval from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee has been obtained: HREC reference number 584/2017.

Enhanced Milieu Teaching (EMT) is a naturalistic language intervention which promotes functional use of new language in the context of every day interaction with competent role models (Kaiser & Trent, 2007).

Many children with a developmental disability have more difficulty learning language and require the services of a Speech-Language Therapist to improve their morpho--syntax and pragmatic abilities. However, we know that parents can only access limited Speech Therapy services in the public sector, due to limited resources and time constraints and this poses a challenge to sustainable intervention. Ultimately, we would like to be able to train other communicative partners, such as parents, to assist us to implement therapy in the home. We would greatly appreciate your input as to the applicability of a therapy programme such as EMT within a bilingual context, and your experiences of the sustainability of such an intervention programme.

In 2015 an EMT study was conducted in the Western Cape, South Africa, with children with ASD, who were learning English at school. During this study, we found that children in our context showed an improvement in their expressive language development following the intervention. We hope to expand the use of this intervention programme to teach families from different cultural and linguistic backgrounds in South Africa to implement EMT at home. The current study is the next step towards this goal.

You have been contacted as a potential participant in this study due to the fact that you have experience in treating bilingual children with diagnosed developmental disorders. Other bilingual Speech Therapists who have experience with this population will also be contacted for inclusion in this study, in order to establish general feelings regarding EMT's linguistic and cultural acceptability within the current context. In addition, parents of children with developmental disabilities will also take part in the study.

Participation in this study would comprise completing a semi-structured interview. The research interviewer will travel to a venue that is accessible to both of you. The interview will take no longer than one and a half hours, with snacks/ refreshments provided throughout the session. Participants will also be required to review their responses once the transcriptions have been completed, and to provide email feedback regarding the accuracy of the transcriptions.

Participation in this study is completely voluntary, and you can withdraw from the study at any time. All data related to your responses will remain confidential. Identifying information will be removed and replaced with a code during the data analysis phase of this study, and original data will be destroyed after publication.

If you require any additional information before completing this form, please feel free to contact me (Ms. Chevonne du Plessis) on DPLCHE002@myuct.ac.za. If you have any questions about the project, you can call the project supervisor (Dr. Michal Harty) at work at 021 406 6313 or email her at michal.harty@uct.ac.za.
You can call Prof. Marc Blockman, Chair of the Human Research Ethics Committee on 021 406 6492 if you have any questions regarding your rights or well-being as participants in the study.

Please complete the consent form below and return to DPLCHE002@myuct.ac.za by Monday, 12 March 2018.

Thank you for your time and cooperation.

_____

signature removed to avoid exposure online

Dr M. Harty
Project supervisor

Chevonne du Plessis
Master's Student

Please indicate your preference below:

I,_____, hereby:

☐ DO wish to participate in the semi-structured interviews on the applicability of EMT

☐ Do NOT wish to participate in the semi-structured interviews on the applicability of EMT

_____	_____	_____
Signed	Name in Print	Date

III. Appendix 3: School permission letters to access families:

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Department of Health and Rehabilitation Sciences
Division of Communication Sciences and Disorders

Old Main Building, Groote Schuur Hospital, Observatory 7925
Tel: +27 (0) 21 406 7667
Fax: +27 (0) 21 406 6323
Internet: www.uct.ac.za

19 February 2018

The Principal

Re: Request to access parental database of pupils registered at [xxx] School in the following study:

"The applicability of implementing Enhanced Milieu Teaching (EMT) with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans/English or English/IsiXhosa at home: parent and professional perspectives"
Ethics approval from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee has been obtained: HREC Reference Number 584/2017

I am a Speech-Language Pathology Master's student from the University of Cape Town. I hereby request permission to have access to the parental database of pupils at [xxx] School for possible inclusion in a naturalistic, play-based intervention and focus group study to be conducted in Cape Town, South Africa. The study will focus on a specific intervention programme, named Enhanced Milieu Teaching. Enhanced Milieu Teaching (EMT) is a naturalistic language intervention which promotes functional use of new language in the context of every day interaction with competent role models (Kaiser & Trent, 2007).

The primary research question for this study is the following:

What is the applicability (effectiveness and cultural acceptability) of implementing EMT with young children with developmental disabilities, who reside in the Western Cape and speak English/Afrikaans or English/isiXhosa at home?

This research question will be answered by the following research objectives:

3. To determine the perceptions of parents regarding the degree to which EMT intervention strategies, materials and outcomes are **culturally** appropriate in the current context?
4. To determine the perceptions of bilingual speech-language therapists regarding the degree to which EMT intervention strategies, goals, materials and outcomes are **culturally and linguistically** appropriate in Afrikaans and IsiXhosa?

Parental focus groups will be conducted to answer the first objective, and we would like to contact parents of children at [xxx] School to answer this research question. This is to determine whether there are any linguistic or cultural barriers to the implementation of EMT in this context, and whether parents view EMT as an applicable intervention programme for bilingual English/Afrikaans or English/IsiXhosa-speaking families.

Ethical principles as mentioned in the Declaration of Helsinki (2013) will be adhered to during the study; autonomy, anonymity and confidentiality will be upheld. The study is considered to be of minimal risk to participants. All participants who meet the selection criteria will be invited to participate.

[xxx] School and any selected participants will not be liable for any costs and no reimbursements will be made for participating in the study. We are requesting access to the parental database from [xxx]l School. Hereafter, there will be no additional work required from staff at the school, as the researchers will use the database to contact parents directly and obtain permission to provide them with further information/ recruitment procedures.

Please do not hesitate to contact myself or the project supervisors should you have any questions or concerns.

Dr. Michal Harty (Principal Researcher)

Email: Michal.harty@uct.ac.za

Senior Lecturer: Division of Communication Sciences and Disorders

Faculty Health Science, University of Cape Town

Chevonne du Plessis (Researcher)

Email: DPLCHE002@myuct.ac.za

Student: Division of Communication Sciences and Disorders

Faculty Health Science, University of Cape Town

Please sign below if permission is granted:

I, ……, principal of [xxx] school:

- ☐ hereby **GRANT** permission for access for the study; *"The applicability of implementing EMT with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans of IsiXhosa at home: parent and professional perspectives".*
- ☐ hereby **do NOT grant** permission for access for the study; *"The applicability of implementing EMT with young children with developmental*

disabilities who reside in the Western Cape and speak Afrikaans of IsiXhosa at home: parent and professional perspectives".

The nature and purpose of the study has been fully explained to me and I have been given the chance to ask questions and gain further information on the study.

Date: ……

Signature:……

IV. Appendix 4: Consent form (parents):

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Department of Health and Rehabilitation Sciences
Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925
Tel: +27 (0) 21 406 7667
Fax: +27 (0) 21 406 6323
Internet: www.uct.ac.za

23 June 2018

Dear Parent,

Thank you for being willing to participate in the study, entitled: ***"The applicability of implementing Enhanced Milieu Teaching (EMT) with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans/English or IsiXhosa/English at home: parent and professional perspectives"***
Ethics approval from the University of Cape Town's Faculty of Health Sciences Human Research Ethics committee has been obtained: HREC Reference number 584/2017.

We are researchers from the University of Cape Town interested in the use of play-based, family-centred therapy to support the language development of young children with developmental disabilities. To do this, we have identified a specific intervention program, Enhanced Milieu Teaching, which was developed in America. The program uses play and natural experiences to provide children with the opportunity to learn and use language successfully. Enhanced Milieu Teaching (EMT) is a naturalistic-type of language intervention. The program promotes functional use of new language with different communication partners (including parents) in the context of everyday activities and play routines (Kaiser & Trent, 2007).

What is the project looking at and why was I asked to participate?

Many children with a developmental disability have more difficulty learning language than children who do not have a disability. Many children will work with a speech-language therapist who helps them to learn new words and sentences to better communicate with their peers. We recently finished a study, which showed that children who speak English at school learnt new English words, and how to use them correctly, using the EMT program mentioned above. However, we only provided the program in English. We want to collect more information from parents to see whether we can use this program for families who come from a different culture, or speak another language apart from English.

For this reason, you have been asked to participate in a **focus group discussion** to gather information about the language used in the EMT programme, and whether the materials and goals in the programme would be functional for you to use at home. Other participants in these groups will be bilingual parents with a child diagnosed with

a developmental disorder, as well as bilingual Speech-Language Therapists who work with children with developmental disabilities.

What is expected of me during the focus group?

You will be asked to **watch video material** where EMT is being done with a young child. In a group setting, you will be **asked some questions** about whether you think this programme would be useful for children who have a developmental disability, such as your son/daughter. We will record the discussion and then type up what was discussed. You will be given an opportunity to check that we have accurately copied down what you said after the group has been conducted.

What are the risks for me if I agree to participate?

There are limited or minimal risks to participating in this study. When we talk about the study results we will not use any information that will allow you to be identified. Identifying information will be removed and replaced with a code during the data analysis phase of this study, and original data will be destroyed after publication. Although we will not use any identifying information when we talk about the findings of the study, we cannot guarantee that things you share will not be repeated by another member of the group. But, we will ask other members of the group not to talk about what is shared with anyone outside of the group setting.

What are the benefits for me if I agree to participate?

There is **no direct benefit** to you if you participate. But if you agree to share your opinions you will be helping us by providing feedback to the programme developers. We will use your feedback to make changes to the program so it may be more beneficial to children and families receiving this type of intervention in our context in future.

Do I have to participate?

Your participation in this study will be completely voluntary, and you can withdraw from the study at any time. There will be no negative effect if you choose not to participate.

Please confirm consent to the focus group below:

I,_____, parent/caregiver of _____, hereby:

- ☐ Give my consent to participate in this focus group regarding EMT
- ☐ Do NOT give my consent to participate in this focus group regarding EMT

_____ _____

_____

Signed Name in Print
Date

V. Appendix 5: Information letter (parents):

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Department of Health and Rehabilitation Sciences
Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925
Tel: +27 (0) 21 406 7667
Fax: +27 (0) 21 406 6323
Internet: www.uct.ac.za

18 May 2018

Vanderbilt KIDTalk
Good things happen when you talk!

Dear Parents,

Re: Potential involvement in Master's Degree Study: parental focus group to discuss the applicability of a naturalistic, play-based therapy for children with developmental disabilities

We are researchers from the University of Cape Town interested in the use of play-based, family-centred therapy to support the language development of young children with developmental disabilities. To do this, we have identified a specific intervention program, Enhanced Milieu Teaching, which was developed in America. The program uses play and natural experiences to provide children with the opportunity to learn and use language successfully.

This study is titled: *"**The applicability of implementing Enhanced Milieu Teaching (EMT) with young children with developmental disabilities who reside in the Western Cape and speak Afrikaans/English or English/IsiXhosa at home: parent and professional perspectives."*** Ethics approval from the University of Cape Town's

Faculty of Health Sciences Human Research Ethics committee has been obtained: HREC Reference Number 584/2017.

The primary research question for this study is the following:

What is the applicability (effectiveness and cultural acceptability) of implementing EMT with young children with developmental disabilities, who reside in the Western Cape and speak English/Afrikaans or English/isiXhosa at home?

This research question will be answered by the following research objectives:

5. To determine the perceptions of **parents** regarding the degree to which EMT intervention strategies, materials and outcomes are **culturally** appropriate in the current context?
6. To determine the perceptions of bilingual speech-language therapists regarding the degree to which EMT intervention strategies, goals, materials and outcomes are **culturally and linguistically** appropriate in Afrikaans and IsiXhosa?

In order to address these questions, we require:

- Parents who are bilingual or multilingual in their home environments (Afrikaans, English and/or IsiXhosa)
- Parents of a child(ren) with diagnosed developmental disabilities
- Parents of a child(ren) who is minimally verbal (at least 10 spontaneous words in any of the languages the child is exposed to)

Ethical principles as mentioned in the Declaration of Helsinki (2013) will be adhered to during the study; autonomy, anonymity and confidentiality will be upheld. The study is considered to be of minimal risk to participants. All participants who meet the selection criteria will be invited to participate.

The study will comprise a focus group discussion, which will be conducted at a venue accessible to the participants. The group should last no longer than two hours in total.

Please do not hesitate to contact me should you have any questions or concerns. I look forward to hearing from you.

Kind regards,

Chevonne du Plessis (Researcher)

Email: DPLCHE002@myuct.ac.za

Student: Division of Communication Sciences and Disorders

Faculty Health Science, University of Cape Town

If you would be willing to participate in this study, and if you meet all the requirements set out above, please complete the reply slip below, or email me at DPLCHE002@myuct.ac.za

PLEASE COMPLETE THE REPLY SLIP BELOW BY 25 MAY 2018 IF YOU WISH TO RECEIVE MORE INFORMATION/ PARTICIPATE IN THIS RESEARCH STUDY

Consent form reply slip/ Toestemming-afskeurstrokie

Please indicate your preference below:

I,_____, hereby:

- ☐ Wish to be contacted for potential participation in the focus group on EMT
- ☐ Do NOT want to be contacted for potential inclusion in the focus group on EMT.

_____ _____ _____
Signed Name in Print Date

Dui asseblief u keuse onderaan:

Ek,_____, ouer/voog van _____, wil hiermee bevestig:

- ☐ Dat ek aan die fokusgroep rakende EMT-implementering wil deelneem
- ☐ Dat ek NIE aan die fokusgroep rakende EMT-implementering wil deelneem NIE

_____ _____ _____
Geteken Naam in Drukskrif Datum

VI. Appendix 6: Focus group discussion guide:

FACULTY OF HEALTH SCIENCES
UNIVERSITY OF CAPE TOWN

Vanderbilt KIDTalk

Adapting EMT for a multi-lingual/ multi-cultural context

Dr Michal Harty, Dr Lauren Hampton,
Ms Chevonne Du Plessis, Prof Ann Kaiser

cutting edge research | world class training and education | partnering for patient centred health services

Supported by VIO category A and B grants from Vanderbilt University &
A URC grant from University of Cape Town

Overview of EMT and the study

- Welcome
- Purpose and aims
- What is EMT
- Who EMT works for
- Videos
- Confidentiality
  - All opinions expressed during the group discussion will be treated confidentially. We will remove any identifiable information and replace this with codes during the analysis of this discussion. Once the study has been completed, all original data will be destroyed in order to protect your privacy

What is EMT & where does it come from?

- **Enhanced Milieu Teaching (EMT)** is a naturalistic language intervention which promotes functional use of new language in the context of every day interaction with competent role models (Kaiser & Trent, 2007).
- Developed in the USA by Prof Ann Kaiser at Vanderbilt's Kidtalk Lab
- In 2013, collaborative partnership started between CSD:UCT and Kidtalk Lab, Vanderbilt University to adapt EMT for South African context
- Partnership is on-going

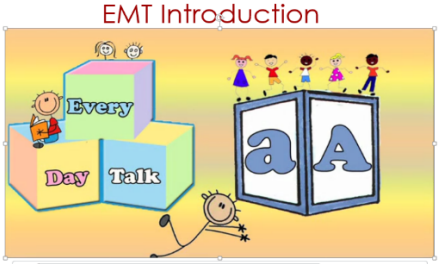
Introduction to this Study

- We are researchers from the University of Cape Town interested in the use of play-based, naturalistic communication intervention to support the language development of young children who have developmental delays and/or are on the Autism Spectrum.
- To do this, we have identified a specific intervention programme that we hope to use to train parents and therapists here in the Western Cape, South Africa. The programme uses **play and interactions in daily routines** to provide children with the opportunity to learn and use language successfully.

Purpose of this Study

- The purpose of this discussion is to ask your opinion, as a parent/caregiver, whether you feel (EMT) is **a socially acceptable and functional programme** within Afrikaans/English- and/or English/IsiXhosa-speaking households in South Africa.
- We will show you some video clips of therapists and/or parents implementing this programme. We will then ask you for your input on the **goals, materials (toys) and method of the programme** demonstrated in the videos.
- We are also interested in learning if you think parents in multilingual/multicultural settings would be **willing and able to learn** and use EMT in SA. To do this, we would like your input regarding the **potential benefits, barriers and changes needed** to the programme.

EMT Introduction



Video of EMT (SA)

Intervention outcomes

- EMT works best for children who use between 1-3 words during communication
- Research has shown that after a relatively short number of sessions (approximately 10 hours of therapy):
  - Children produce **more spontaneous attempts** to communicate
  - Children used a greater **number of different words** per session

EMT targets changes in **form and function** of language

Communication **functions**, specifically
- *Initiations,*
- *Requesting,*
- *Making choices and*
- *Commenting*

Communication **forms**, (specifically early semantic associations such as:)
- Modifier and noun
- Adjective and action
- Action and object
- Preposition and location

Intervention: video clips

Initiating

Requesting

Intervention: video clips

Making choices

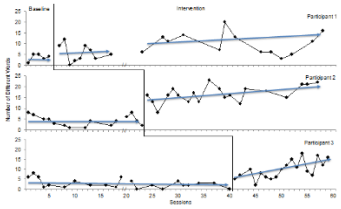
Commenting

How EMT is done:

- EMT is based on the child's interests and uses toys or familiar routines
- In research studies the sessions are video recorded and a small portion of the sessions are transcribed to track progress
- The child's and adult's **communication turns are transcribed** using a transcription software program called SALT (systematic analysis of language transcripts).
- Researchers look at:
  - **clinicians consistent use of the EMT strategies** during the session &
  - **the level of independence of the child's language** (spontaneous initiation, elicited, imitated or prompted).
- A report is then generated which provides session data for how many different words the child uses as well as the total number of words and this is then put into graphs
- Over time these graphs show how a child improves

University of Cape Town Faculty of Health Sciences

Single subject study: no of different words



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Strategies (Kaiser & Hampton, 2016).

EMT includes six key strategies:

1. environmental arrangement,
2. matched-turn responsiveness,
3. modelling target language,
4. expanding communication,
5. milieu episodes (also known as incidental teaching or time delay strategies)
6. Prompting.

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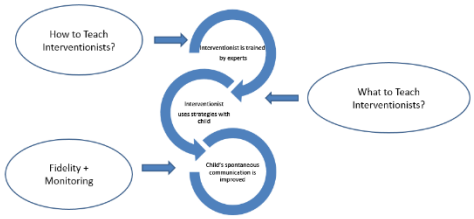
Name of Strategy:	What it is about:	What must I do:	Why should I do this:
1. ENVIRONMENTAL ARRANGEMENT	The purpose of Environmental Arrangement is to create a setting for both teaching and learning language. This is achieved by selecting activities and materials that are of interest to the child. Having materials available that are of interest to the child will support and encourage the child to engage with the materials. This increases opportunity for interaction between the child and the adult.	- Simplify the environment - Choose activities and toys that are at your child's play level - Identify the easiest steps of a play routine - Actively play with the toys and become an enjoyable communication partner to your child (see next strategy)	- Creates a physical environment that is easy for your child to engage in - Identify an item/area of interest that is meaningful for your child - Allows your child to lead, making it easy for you to follow the child, because the environment is structured and predictable - Increases the amount of time you and your child actively engage
2. RESPONSIVE INTERACTION *(matched-turn responsiveness)*	Children with DD/ASD present with limited motivation to communicate due to a decreased need to interact socially. The strategy behind Responsive Interaction is to engage the child in non-verbal and verbal interactions to provide a variety of opportunities for using new language and vocabulary. This increases the likelihood that the child will interact with the adult.	- Sit facing your child, at the child's eye level and within reach of your child and toys - Allow your child to take the lead at their pace - Copy your child's actions - Show your child what to do, rather than tell your child what to do - Add objects to extend play	- Creates a connection with your child without using language - Shows your child that you are interested in what they are doing - Affirms to your child that what they are doing is good - Keeps the interactions positive - Makes the interactions last longer - Creates new opportunities for communication

3. CREATING OPPORTUNITIES TO TALK *(modelling target language + milieu episodes)*	Opportunities are created in the environment to allow for initiation of communication. This strategy allows the child to progress from copying language to eventually independently using language naturally	The **3 techniques** that will be taught are: - Choice making (give the child a choice between 2 items) - Missing item (deliberately leave out an object needed to complete/continue with the play) - Brief turns (don't make all of the pieces available immediately)	- Encourages your child to make requests and comments

4. **MODELLING AND EXPANSION** *(expanding communication + prompting)*	Many children with DD/ASD have limited vocabularies, or use vocabulary that is only restricted to their interests. Language modelling provides children with specific examples of language to use. By copying the child's communication and adding a new word, this is known as expansion	- Provide your child with relevant words as you play - Use a variety of words to describe what you and your child are doing	- Makes it easier for your child to comment on what he/she is doing in future activities - Allows your child to match words to actions - Helps your child to put words together to build sentences

How do we achieve this?
-training
-fidelity during intervention
-evidence-based monitoring of effect on child



Training/Fidelity

Strategy	Description	Criteria
Matched turn responsiveness	Adult turns that follow a child turn that are contingent and related.	80% of communicative turns are matched
Language expansions	The adult expands the child's communication by adding words. An expansion must match the intent of the child.	The interventionist correctly expands 40% of child communicative utterances
Correct use of prompting episodes	The adult uses a time delay or milieu prompting procedure to elicit or prompt for language using the teaching procedures specified by the EMT strategies.	The interventionist implements prompting procedures with 80% accuracy

Evidence for Training Parents

- Parents **learn** the strategies to criterion levels.
  - Alpert & Kaiser, 1992*; Hemmeter & Kaiser 1994*; Hancock & Kaiser, 2001*; Kaiser et al., 1996*; Kaiser & Roberts, 2012; Roberts, Kaiser, et al submitted; Roberts & Kaiser,2013; Kaiser, Hancock & Nietfeld*, 2001; Roberts et al, 2015; Wright & Kaiser, 2013*
- Parents **generalize** these strategies to home interactions with their children (Hancock & Kaiser, 2002; Kaiser & Roberts, 2012; Roberts et al, 2015*; Wright & Kaiser, 2013*; Feredo, et al., in press*).
- Parents **maintain** their newly-learned skills over 6-18 months (Kaiser, et al 2001*; Kaiser & Roberts, 2012;Roberts & Kaiser, 2015; Hampton et al., in press).

Your thoughts on EMT as a social and functional programme in the home

Initial thoughts on EMT?

1. How did you feel about what you saw in the videos? Positive and/or negative
2. How do you currently communicate to your child?
3. How does your child currently communicate with you/others?
4. What types of toys/activities interests your child the most and gets them the most engaged in interaction/ communication with you?

EMT: Social Acceptability

As a Parent/Caregiver:

5. When looking at the activities on the videoclips would you be able to repeat the same type of activity at home?
6. Would you be willing to try some of the activities in the video in your own home?
   - Why/ Why not?
   - How willing/unwilling?

EMT: Social Acceptability

7. Some of the **goals/targets** of this intervention programme include that a child can:
   - Request (ask for)
   - Comment (tell us about)
8. Would you say these goals are important within your home environment?
9. What other communication goals would you say is important in your home environment?

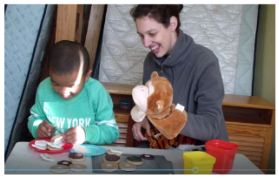
EMT: Social Acceptability

10. What other (kinds of) information about EMT would be beneficial to you?
11. What would some of the benefits and challenges be to training you as a parent in EMT?

EMT: Social Acceptability

12. What were some aspects of the videoclips that you liked/agreed with?
13. Would you be willing to recommend this intervention to a friend?
14. What do you feel are some aspects of this intervention that could be changed to make the intervention more suitable to you and your family?

EMT in the SA Context?



- Can you suggest some ideas of additional material (toys) that would be culturally appropriate in your home environment?

Summary

- Thank you for the time you took to talk to us today.
- EMT tries to teach children how to communicate in a playful way. After what we have discussed, do you think playing with your child in this way is something you would be able to fit into your daily routine at home? Is it a practical way for you to help your child learn language?

Documents to fill in

- Participant consent form
- Demographic Questionnaire
- Additional materials (toy-set ideas)
- Contact details for follow up

VII. Appendix 7: Semi-structured interview guide:

FACULTY OF HEALTH SCIENCES
UNIVERSITY OF CAPE TOWN

Vanderbilt KIDTalk

Adapting EMT for a multi-lingual/ multi-cultural context

Dr Michal Harty, Dr Lauren Hampton,
Ms Chevonne Du Plessis, Prof Ann Kaiser

cutting edge research | world class training and education | partnering for patient centred health services

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What is EMT & where does it come from?

- **Enhanced Milieu Teaching (EMT)** is a naturalistic language intervention which promotes functional use of new language in the context of every day interaction with competent role models (Kaiser & Trent, 2007).
- Developed in the USA by Prof Ann Kaiser at Vanderbilt's Kidtalk Lab
- In 2013, collaborative partnership started between CSD:UCT and Kidtalk Lab, Vanderbilt University to adapt EMT for South African context
- Partnership is on-going

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Overview of EMT and the study

- Purpose and aims
- What is EMT
- Who EMT works for
- Video
- Confidentiality

University of Cape Town | Faculty of Health Sciences

Introduction to this Study

- We are researchers from the University of Cape Town interested in the use of play-based, naturalistic communication intervention to support the language development of young children who have developmental delays and/or are on the Autism Spectrum.
- To do this, we have identified a specific intervention programme that we hope to use to train parents and therapists here in the Western Cape, South Africa. The programme uses **play and interactions in daily routines** to provide children with the opportunity to learn and use language successfully.

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Purpose of this Study

- The purpose of this interview is to ask your opinion, as a professional, whether you feel (EMT) is **applicable and appropriate** within Afrikaans- and/or isiXhosa-speaking contexts in South Africa.
- We will show you some video clips of therapists and/or parents implementing this type of intervention and then ask you for your input on the **goals, strategies and materials** explained within this guide.
- We are also interested in learning if you think professionals and/or parents in this context would be **willing to learn** and use EMT in SA.

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EMT Introduction

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Target Population

- Children in early stages of language development
  - MLU between 1.0 and 3.5
  - Young children with:
    - cognitive impairment
    - language delays
    - DD/ ASD
    - low-income, high-risk families

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Video of EMT (SA)

University of Cape Town | Faculty of Health Sciences

EMT targets changes in **form and function** of language

Communication **functions**, specifically
- *Initiations,*
- *Requesting,*
- *Making choices and*
- *Commenting*

Communication **forms**, (specifically early semantic associations such as:)
- Modifier and noun
- Adjective and action
- Action and object
- Preposition and location

Intervention: video clips

Initiating

Requesting

Intervention: video clips

Making choices

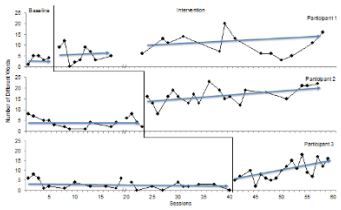
Commenting

How EMT is conducted:

- EMT is based on the child's interests and uses toys or familiar routines
- In research studies the sessions are video recorded and a small portion of the sessions are transcribed to track progress
- The child's and adult's **communication turns are transcribed** using a transcription software program called SALT (systematic analysis of language transcripts).
- Researchers look at:
  - **clinicians consistent use of the EMT strategies** during the session &
  - **the level of independence of the child's language** (spontaneous initiation, elicited, imitated or prompted).
- A report is then generated which provides session data for how many different words the child uses as well as the total number of words and this is then put into graphs
- Over time these graphs show how a child improves

University of Cape Town Faculty of Health Sciences

Single subject study: no of different words



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Intervention outcomes

- EMT works best for children who have an average MLU of between 1-3
- Research has shown that after a relatively short number of sessions (approximately 10 hours of therapy):
  - Children's **spontaneous communication attempts** increased
  - Children used a greater **number of different words** per session

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Strategies (Kaiser & Hampton, 2016).

EMT includes six key strategies:

1. environmental arrangement,
2. matched-turn responsiveness,
3. modelling target language,
4. expanding communication,
5. milieu episodes (also known as incidental teaching or time delay strategies)
6. Prompting.

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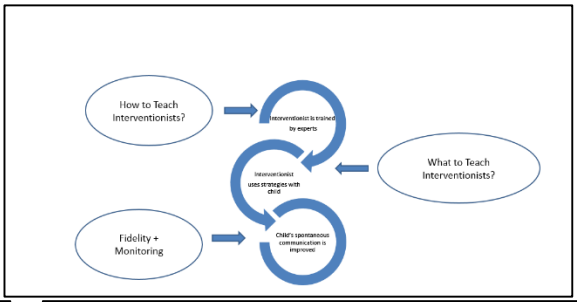
Name of Strategy:	What it is about:	What must I do:	Why should I do this:
1. ENVIRONMENTAL ARRANGEMENT	The purpose of Environmental Arrangement is to create a setting for both teaching and learning language. This is achieved by selecting activities and materials that are of interest to the child. Having materials available that are of interest to the child will support and encourage the child to engage with the materials. This increases opportunity for interaction between the child and the adult.	- Simplify the environment - Choose activities and toys that are at your child's play level - Identify the easiest steps of a play routine - Actively play with the toys and become an enjoyable communication partner to your child (see next strategy)	- Creates a physical environment that is easy for your child to engage in - Identify an item/area of interest that is meaningful for your child - Allows your child to lead, making it easy for you to follow the child, because the environment is structured and predictable - Increases the amount of time you and your child actively engage

2. RESPONSIVE INTERACTION *(matched-turn responsiveness)*	Children with DD/ASD present with limited motivation to communicate due to a decreased need to interact socially. The strategy behind Responsive Interaction is to engage the child in non-verbal and verbal interactions to provide a variety of opportunities for using new language and vocabulary. This increases the likelihood that the child will interact with the adult.	- Sit facing your child, at the child's eye level and within reach of your child and toys - Allow your child to take the lead at their pace - Copy your child's actions - Show your child what to do, rather than tell your child what to do - Add objects to extend play	- Creates a connection with your child without using language - Shows your child that you are interested in what they are doing - Affirms to your child that what they are doing is good - Keeps the interactions positive - Makes the interactions last longer - Creates new opportunities for communication
3. CREATING OPPORTUNITIES TO TALK *(modelling target language + milieu episodes)*	Opportunities are created in the environment to allow for initiation of communication. This strategy allows the child to progress from copying language to eventually independently using language naturally	The **3 techniques** that will be taught are: - Choice making (give the child a choice between 2 items) - Missing item (deliberately leave out an object needed to complete/continue with the play) - Brief turns (don't make all of the pieces available immediately)	- Encourages your child to make requests and comments
4. **MODELLING AND EXPANSION** *(expanding communication + prompting)*	Many children with DD/ASD have limited vocabularies, or use vocabulary that is only restricted to their interests. Language modelling provides children with specific examples of language to use. By copying the child's communication and adding a new word, this is known as expansion	- Provide your child with relevant words as you play - Use a variety of words to describe what you and your child are doing	- Makes it easier for your child to comment on what he/she is doing in future activities - Allows your child to match words to actions - Helps your child to put words together to build sentences

How do we achieve this?

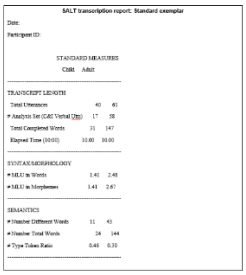
-training
-fidelity during intervention
-evidence-based monitoring of effect on child



Training/Fidelity

Strategy	Description	Criteria
Matched turn responsiveness	Adult turns that follow a child turn that are contingent and related.	80% of communicative turns are matched
Language expansions	The adult expands the child's communication by adding words. An expansion must match the intent of the child.	The interventionist correctly expands 40% of child communicative utterances
Correct use of prompting episodes	The adult uses a time delay or milieu prompting procedure to elicit or prompt for language using the teaching procedures specified by the EMT strategies.	The interventionist implements prompting procedures with 80% accuracy

Monitoring



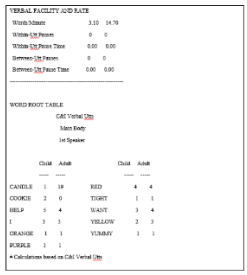
SALT transcription report: Standard exemplar

Date:

Participant ID:

STANDARD MEASURES

	Child	Adult
TRANSCRIPT LENGTH		
Total Utterances	40	61
# Analysis Set (C&C Virtual Lbs)	17	58
Total Completed Words	31	147
Elapsed Time (hh:mi)	10:00	10:00
SYNTAX/MORPHOLOGY		
# MLU in Words	1.41	2.48
# MLU in Morphemes	1.41	2.67
SEMANTICS		
# Number Different Words	11	43
# Number Total Words	24	144
# Type Token Ratio	0.46	0.30



VERBAL FACILITY AND RATE

Words/Minute	3.10	14.70
Within-Utt Pauses	0	0
Within-Utt Pause Time	0.00	0.00
Between-Utt Pauses	0	0
Between-Utt Pause Time	0.00	0.00

WORD ROOT TABLE

C&C Virtual Lbs

Main Body

1st Speaker

	Child	Adult		Child	Adult
CANDLE	1	19	RED	4	4
COOKIE	2	0	TIGHT	1	1
HELP	5	4	WANT	3	4
I	3	7	YELLOW	2	3
ORANGE	1	1	YUMMY	1	1
PURPLE	1	1			

Calculations based on C&C Virtual Lbs

Evidence for Training Parents

- Parents **learn** the strategies to criterion levels.
  - Alpert & Kaiser, 1992*; Hemmeter & Kaiser 1996*; Hancock & Kaiser, 2002*; Kaiser et al., 1996*; Kaiser & Roberts, 2012; Roberts, Kaiser, et al submitted; Roberts & Kaiser,2015; Kaiser, Hancock & Nietfeld*, 2001; Roberts et al, 2015; Wright & Kaiser, 2013*
- Parents **generalize** these strategies to home interactions with their children (Hancock & Kaiser, 2002; Kaiser & Roberts, 2012; Roberts et al, 2015*; Wright & Kaiser, 2013*; Pareds, et al., in press*).
- Parents **maintain** their newly-learned skills over 6-18 months (Kaiser, et al 2001*; Kaiser & Roberts, 2012;Roberts & Kaiser, 2015; Hampton et al., in press).

Your thoughts on EMT Applicability

Initial thoughts on EMT?

1. How did you feel about what you saw in the videos? Positive and/or negative
2. What types of language interventions do you use in your context?
3. How is what you saw in the videos similar to what you already do in therapy?
4. How is what you saw in the videos different to what you are currently doing in therapy?

EMT: Social Acceptability

As a Speech Therapist:

4. What do you think/feel about using EMT with children with developmental disabilities in the SA context?
   – Why/ Why not?
5. What other (kinds of) information about EMT would be beneficial to you?
6. What would some of the benefits and challenges be to training someone like you to implement some of these strategies in your own clinical practice?

EMT: Social Acceptability

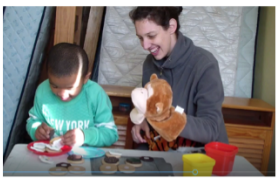
As a Speech Therapist:

7. What would be some of the benefits/challenges of teaching parents to communicate with the children in the ways shown in the videos into their daily routines/home context?
   – Which factors, do you think, may influence this?
8. What are your perceptions/thoughts/feelings regarding the willingness of parents to be intervention partners in general?
   – Which factors, do you think, may influence this?
9. Would you be willing to recommend this kind of intervention to a family on your caseload?
   – Why/Why not?
   – Which factors, would influence your decision?

EMT: Morpho-syntactical Adaptations

10. What are some of the first single words that typically developing children who speak Afrikaans- or IsiXhosa acquire?
11. What are some of the first 2-word combinations typically developing children who speak Afrikaans- or IsiXhosa acquire?
12. How are these similar/different to what we would target in English?

EMT in the SA Context?



– Can you suggest some ideas of additional material (toys) that would be culturally appropriate for the community you grew up in, or work in now, based on cultural differences?

Summary

- Thank you for the time you took to talk to us today.
- Is there anything else regarding EMT, parental involvement or language development in this population that you would like to mention?

Documents to fill in

- SLT consent form
- Demographic Questionnaire
- Vocabulary List for toy sets
- Additional materials (toy-set ideas)

VIII. Appendix 8: Demographic questionnaires:

Demographics Questionnaire for Clinicians:

For office use only: Participant number: _____

Dear Clinician, please answer all questions below. All information will be treated confidentially.

Please state your current age:	
Do you identify as male or female?	
To which cultural group do you belong? (e.g. Caucasian, Indian, Asian)	
Which language(s) do you speak at home and/or at work?	
What is your highest level of education?	
In which area/region have you worked/are you working?	
How many years have you been working?	
Do you have experience in working with children with special needs? Please specify.	
Do you have experience in working with children on the Autism Spectrum? If so, please specify.	
Do you have experience in working with bilingual/monolingual children? If so,	

please specify which languages you used, as well as which languages the child(ren) spoke.	
Are you currently employed? If so, please specify full-time or part-time	

Thank you for your time and valuable input.

Demographics Questionnaire for Parents:

For office use only: Participant number: _____

Dear Parent, please <u>answer all questions</u> below. All information will be treated <u>confidentially</u>.

Name and Surname:	
Parent/Caregiver of:	
Please state your current age:	
Do you identify as male or female?	
To which cultural group do you belong? (e.g. Caucasian, Indian, Asian)	
Which language(s) do you speak at home?	
What is the primary language of instruction to your child/ren?	
In which area/region do you stay?	
Was your child born in the same area/region? Please specify if different:	
How many children do you have? Please specify ages.	
How many children with special needs do you have? Please specify ages.	
Please state any diagnoses your child/ren with special needs presents with:	

Please state the diagnosis and age of the child that you will be referring to in today's discussion (if more than one child in the household)	
Are you and/or your spouse currently employed? If so, please state full-time or part-time.	
Does your child with special needs live with both parents in one home?	
Who is the child's main caregiver during the day?	
Is your child currently receiving any type of intervention?	
Has your child received any intervention in the past? Please specify public sector/school sector/ private sector intervention:	

Thank you for your time and valuable input.

IX. Appendix 9: Example vocabulary lists:

VOCABULARY IDEAS FOR PLAY KITS

Fruit and Vegetables Cooking Set

Nouns	Verbs	Prepositions	Adjectives	Phrases	Request Words
Pear	Cut	In	Red	Put in	Finished
Pronouns	State Verbs	Negatives			
Me	Hungry	No			

X. Appendix 10: HREC Ethical approval:

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room E53-46 Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone (021) 406 6492
Email: sumayah.arieffdien@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

06 February 2018

HREC REF: 584/2017

Dr M Harty
Health & Rehab Sciences
CSD
F-45-OMB

Dear Dr Harty

PROJECT TITLE: IMPLEMENTING EMT WITH YOUNG CHILDREN WITH DEVELOPMENTAL DISABILITIES WHO RESIDE IN THE WESTERN CAPE AND SPEAK AFRIKAANS OR ISIXHOSA AT HOME: PARENT AND PROFESSIONAL PERSPECTIVES (MSc-candidate-C du Plessis)

Thank you for your response letter, addressing the issues raised by the Human Research Ethics Committee (HREC).

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 28 February 2019.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

We acknowledge that the student: Ms C du Plessis will also be involved in this study.

Please quote the HREC REF in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

Yours sincerely

signature removed to avoid exposure online

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE

Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938

HREC 584/2017

XI. Appendix 11: Western Cape Education Department Permission letter:

Western Cape Government
Education

Directorate: Research

Audrey.wyngaard@westerncape.gov.za
tel: +27 021 467 9272
Fax: 0865902282
Private Bag x9114, Cape Town, 8000
wced.wcape.gov.za

REFERENCE: 20170719 –3086
ENQUIRIES: Dr A T Wyngaard

Dr Michal Harty
Department of Health and Rehabilitation
Room 23 F 56, Old Main Building
Groote Schuur Hospital
Groote Schuur Drive
Observatory
7925

Dear Dr Michal Harty

RESEARCH PROPOSAL: THE APPLICABILITY OF IMPLEMENTING EMT WITH YOUNG CHILDREN WITH DEVELOPMENTAL DISABILITIES, SUCH AS ASD, WHO RESIDE IN THE WESTERN CAPE AND SPEAK AFRIKAANS OR ISIXHOSA AT HOME

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Educators' programmes are not to be interrupted.
5. The Study is to be conducted from **01 August 2017 till 30 August 2018**
6. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
7. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
8. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
9. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
10. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
11. The Department receives a copy of the completed report/dissertation/thesis addressed to:

    The Director: Research Services
    Western Cape Education Department
    Private Bag X9114
    CAPE TOWN
    8000

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
Directorate: Research
DATE: 20 July 2017

XII. Appendix 12: Accuracy of transcription form:

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Department of Health and Rehabilitation Sciences
Division of Communication Sciences and Disorders

F45 Old Main Building, Groote Schuur Hospital, Observatory 7925
Tel: +27 (0) 21 406 7667
Fax: +27 (0) 21 406 6323
Internet: www.uct.ac.za

ACCURACY OF TRANSCRIPTION FORM

Dear Participant,

Thank you once again for your participation in the focus group discussions conducted in June 2018.

Please read through the attached transcription of the focus group that you attended and tick in the appropriate space below:

☐ The transcribed focus group data **IS an accurate reflection** of my words and opinions as communicated in the focus group that I attended.

☐ The transcribed focus group data **IS NOT an accurate reflection** of my words and opinions as communicated in the focus group that I attended.

If the data is not accurate, please elaborate on the sections you wish to be modified below and tell us how you would like your views to be edited or augmented:

_____

_____

_____

_____

_____

Name in Full:

_____

____

Signature:

_____

_____

Date:

_____

_____

XIII. Appendix 13: Coding rubric:

SERVICE SETTING ADAPTATIONS Structural access problems affect both professionals' ability to access patients, and patients' ability to access intervention.	
THEME CATCHPHRASE What was different though, was just the environment and the types of materials that they were using, which is not stuff that I always have access to, and the environment especially. Like, it was a very quiet environment… They were sort of just focussing here and working their way. Where with us, often it is quite noisy. You have people coming in and out, and there's a lot of chaos happening so, it does make it a bit difficult… – SLT 5	
Identified Subthemes and Description of Subthemes	Example Quotes

a) PHYSICAL INTERVENTION SETTINGS In South Africa, the clinic and home service settings where intervention is provided, is diverse and often difficult to access. Factors relating to the availability of a space/setting conducive to the child's learning needs to be considered.	Because that's also the reality of this context…that you don't always have access to the child as regularly as you would like so that the carryover is the way that you would like for it to be. - SLT 2 It would be better to then maybe try and work with what the therapist already has…instead of trying to say "You need this and this." It would be better to work within the therapist's environment and find a way to make all of this work... and then to implement it then would be easier because if you've been trained within your own environment, which you already have, I think that would be better. – SLT 5 In terms of the toys used, it depends on what resources you have at your practise and what you are able to take with you, because usually you see the children at school. So you won't necessarily see them at their house or not even necessarily at your office where you have all of the materials. - SLT 3 He doesn't want to stay home. If you will leave him at home, it's like you put him in the jail. – FG 2, P 3 You know, if he looked at me and says: Your time, your turn, whatever, like that. But there's no way he's going to sit still to do that plan. – FG 2; P 2

b) IDENTIFYING INTERVENTION PARTNERS In order to support therapy goals in the SA context, SLT's need to consider parents as partners. Factors to consider include who brings the child for intervention, as well as how easy the clinic services are for families to access. Alternative settings, like the home, also need to be considered.	Like finding one caregiver who would actually be doing this with a child… we have families coming and today is the grandmother bringing the child, and the next time it's the neighbour bringing the child, then it's that one bringing the child so it's very difficult to try and train a parent in how to be doing these things at home. – SLT 5 My negative thing is, the cultural use of toys. And that's not to say, I think the children could use it; I wonder if the parents... because in their culture, their way of play is not the same as ours [therapists]. – SLT 1 For us to communicate with our child, it needs our understanding, and then their understanding also. So, it's going to help if we're going to teach with something he can see, and then he will relate to that. – FG 2; P 1 I can make time to do it for most of the time, because we attended OT for almost three years, so I'm used to that. But the problem is that he can bore easily, and then he want to try something else while you still focus on this one and then he is just changing to something else. – FG 2; P 2 We try to bring in what was shown there every day, but I think if we just know which moments are right, that would help a lot. – FG 1; P 4

c) TRAINING AND IMPLEMENTATION REQUIREMENTS To improve the feasibility of EMT training in various diverse service settings the requirements needed for implementing EMT need to be considered. These include time constraints related to training, decisions regarding which families to train, and decisions regarding the types of strategies that would be appropriate to teach to caregivers.	I would definitely want to know like time based. I think it mentioned something like 10 hours or 10 sessions or something so, what is the average time that you would need to obviously, yourself to be trained, and then the caregiver to be trained and all of that. Your caseload is quite large so, if you could whip out, “okay, we’re going to do EMT with this family and it’s going to be for so many weeks…it would be quite cool. – SLT 5 Often, you have to engage him. By going to him, but then you try and what, what do you do now? – FG 1; P 3 I will also implement it, but I will also need some information, because my child is too frail. So, sometimes he can go whoever he meets, if they say: Let's go to the shop. Or, he can come here and then he will start playing with your hair, ask you: What's your name? Where do you stay? All that. (FG 2; P 4)
MODE OF DELIVERY ADAPTATIONS In order to support improved dose and frequency of communication intervention, it is important to address the mode of service delivery to align with the diverse communication needs of South African families.	
THEME CATCHPHRASE It might not be appropriate at home for the mum to be playing with the child because maybe everyone might think, like what’s happening? This isn’t what we usually do. – SLT 5	
Identified Subthemes and Description of Subthemes	Example Quotes

a) CREATING OPPORTUNITIES TO COMMUNICATE Factors related to the naturalistic approach and use of scaffolding strategies to support expressive communication targets in EMT need to be considered. This is to ensure a successful framework of strategies and skills that can be incorporated in various communicative environments by both professionals and/or parents.	I'd always ask the parent, "What do you have at home?" And sort of try and work more towards that so, a lot of the times the play activities we do are more like feeding and playing with maybe a baby doll and pretending to cook food. Things that are a bit more appropriate than just playing with maybe just cars. – SLT 5 I think it's a very core kind of environment that is set up, because it's free for the child, you know, the child interacts very freely. – SLT 2 It's so exciting to know that I can learn to give him the control in certain things, you know. To put the scenario in play and then just leave him to start doing something. – FG 1; P 3
b) PARTICIPATORY LEARNING ACTIVITIES AND MATERIALS Therapy activities should be structured in such a way as to facilitate participation between various communicative partners. In order for an activity to achieve participation, the physical materials and types of activities relevant to individual family contexts needs to be considered in order for communication goals to be targeted in a variety of communicative interactions.	There was a lot of things that I was thinking of that might not work so well, especially if we think about our population and sort of the things that our population has at home. They were using all these fancy toys, and this is something not really that our population would have at home. – SLT 5 He's not interested to play the games. I can tell you. He won't sit there and play with us. We can come outside and play with him, yes. But then he's going to move from here to there constantly. You need to move with him. – FG 2; P 2 I will implement this at home, most definitely. Because she's a child that if you…Even with the blocks, if I sit there and play with her with the blocks, she's focussed on that. She don't take her mind off from it. – FG 2; P 4 He loves horses…So, he goes for a drive with Pa and then he goes to the horses and he's at his happiest. – FG 2, P 1

TARGET AUDIENCE ADAPTATIONS Language learning is nestled within contextual opportunities. For a naturalistic intervention such as EMT to be feasible within a South African context, it is important to consider the parents and family	
THEME CATCHPHRASE This EMT programme needs to empower and upskill you, because you, you learn the right ways and you don't have 1 hour a week, you have 50. – FG 1; P 4	
Identified Subthemes and Description of Subthemes	Example Quotes
a) PARENTAL-PROFESSIONAL COLLABORATION In order to adapt EMT for a diverse target audience such as South Africa, it is imperative to ensure strong parental-professional partnerships in intervention. This will allow EMT to be more responsive to individual children, families' and SLT's intervention and communication goals.	I think it might be quite a way to empower parents. Learning how to better communicate with their children because it is something that parents want their kids to talk. – SLT 5 It's also very difficult to get the parents buy in because they're so used to the way that they have been doing things and letting the child get away with everything and a lot of the time it's just tantrums, which is not conducive to communication. – SLT 2 So it's always a good idea to have thought of a type of way to do the same types of things you do in therapy at home then it becomes more natural for the child. - SLT 3 There's no thing that he plays with. Just as he goes around he finds this… And you can have toys there. He's not really interested in those toys. But give him a real hammer, give him a spade…a real spade, don't give him a play spade or those kinds of things. – FG 2; P 2

b) FAMILY DYNAMICS AND PRIORITIES Considerations regarding diverse family dynamics and the priorities within each family context would need to be considered when deciding on the most appropriate home routines to use in order to support optimal communicative development within individual home contexts.	Because I think what is lacking, especially in this context, is a fear from the parents side on behaviour and managing it and so in my intervention I have to start with the shaping of a communicatively available behaviour. – SLT 2 I try to give them examples that they can use in everyday life, because I think everyone is busy. – SLT 1 Yes, for [child], one thing is, because me and the grandmother, we used to be with him, but his grandmother, she is working. Me too, I am working. We didn't have, like, much more time for [child]. That's why it also little bit affect [child] now. – FG 2; P 3 Our [child], not really is it a speech problem. I would say just to be able to… He doesn't have fear. No fear. That is my biggest… That is my only issue with him.- FG 2; P 2 So we need to teach them the bad touches, to differentiate people. This is the bad person, the bad things that a person cannot do to them. That's something I need, so that he can understand that: I cannot go with any father. I can just trust this one. – FG 2; P 4

c) RESOURCES In the SA public sector context clinicians have limited resources to provide to patients, and patients experience constraints in accessing and continuing to use these limited resources. Considerations would need to be made in light of these limitations to improve availability and accessibility of appropriate communicative interventions.	I travel around so, I have to take all my stuff with me so, it's very difficult to have a wide variety of things for the child to maybe choose from. Let's say if we need so many sessions, and then if the parent could carry on at home, I'd say that's really cost effective and time effective, because at the end of the day I can't keep kids on my caseload forever. I don't have the resources to do that. – SLT 5 I could very easily use my salary to equip my room and all of that, but that's not necessarily the best way forward because I'm always leaning towards changing the administrative bodies in the system. I don't know, for some reason it's just easier to put up a wall for the physio or a stretch band for the OT versus a puzzle for instance for us or any number of other things. It's very fifth world, it's not even third world. It's very fifth world. – SLT 2 Parents won't necessarily be able to immediately obtain or buy all the therapeutic toys that they see you using in the session. And maybe they want to use the same types of things but they don't necessarily always have the financial, they're not always in the financial position to afford that, especially within the public sector. – SLT 3 Time. Because you would only be able to give him, most probably, even if it's in that normal household setup, probably a hour before bath time or something like that. Because after bath time it's finished. – FG 2; P 1 Money is an issue. It's a reality, you know, not everyone can afford this. – FG 1; P 1

CULTURAL COMPONENTS Consideration of diverse parenting practices and preferences towards activity-types, languages spoken and culturally appropriate strategies would be required to bridge the gap between appropriateness of EMT strategies and fit of EMT implementation in multicultural and/or multilingual contexts.	
THEME CATCHPHRASE It's difficult for them to translate what you've said in English with their child, in their home language. So that is definitely a big factor is the language, especially because it's about communication. It's so much easier to show a mum something physical like you're trying to put up a child's hands, but now you have to explain to her how to communicate with her child and it's already a different language. – SLT 5	
Identified Subthemes and Description of Subthemes	Example Quotes
a) MULTILINGUISTIC INTERVENTION TARGETS In South Africa, 11 official languages are recognised. Families and children may therefore be exposed to multiple languages within their home, school and work contexts. As a result of this environmental exposure, therapy goals would need to consider the effect of this exposure, and the family's preferences towards language(s) spoken and targeted in therapy, as well as which communicative functions would need to be prioritized according to individual family needs.	I think I try very hard to maximise my time during this whole session, to kind of get as much information as I can out of the caregiver in terms of the language exposure, what are all the languages they are exposed to? – SLT 2 Then, you know, you always have communication, but the language spoken are often very mixed. – FG 1; P 1 We used to communicate to his mother's language, Xhosa, and English. Because I know his situation, around him I must mind myself too much language. – FG 2; P 3 I speak to [child] normally in Afrikaans. Some words it's just, like, Afrikaans, and… But most of his, the three-letter words, that mostly is English. Even here, there, is Afrikaans, or Pedi, or like that. – FG 2; P 2

b) DIVERSE PARENTING PRACTICES In order for a naturalistic intervention, such as EMT, to be considered contextually appropriate, the diverse cultures and parenting practices which exist within a context need to be considered. Therapy goals, learning activities and materials may require adaptations to improve the "fit" thereof within various multilingual and/or multicultural home environments and improve continuity of therapy goals within the home context.	The culture practice at home in terms of communicating with kids…is very important as well. If it's more of a seen than be heard situation, then there is no integration… I think it's important also to add to that is the fact that in this context, our kids are not necessarily used to toys at all anyways. – SLT 2 I do think in many Afrikaans households it is super important to have manners from a very small age. So I think a lot of Afrikaans children learn to say asseblief and dankie before anything else. – SLT 3 Or, I'll always ask about, mum maybe does bring the child but the mum works full-day and she'll be like 'I'll ask.' What do you do after work when you get home?' And then it's basically, 'we feed the child and the child goes to bed.' – SLT 5 He doesn't really play with other children or he doesn't really need to communicate…he's all on his own with us. – FG 2; P 2 For me, it's to follow a command, because if I send him to do something, he still doesn't. That's what I want. That will make me happy, if I can say: Go and do something. And then he can straight away go and do that. – FG 2; P 1

XIV. Appendix 14: Ethical considerations:

Ethical Considerations for Parent Focus Groups and Semi-Structured Interviews			
Ethical principle	**Concerns in current study**	**Proposals to mitigate ethical concerns**	**Accountability and reporting measures**
-Privacy and Confidentiality	Acknowledge that confidentiality cannot be guaranteed during the focus group discussions/semi-structured interviews Acknowledge that audio recording of focus group discussions and semi-structured interviews is required to ensure accurate capturing and transcription of participant responses.	The need for confidentiality between members of the focus groups will be reinforced as part of the focus group rules at the beginning of the sessions by the research personnel. Participants were notified in the consent letters that confidentiality cannot be guaranteed during the focus group discussions/ semi-structured interviews Representative codes were used to replace any identifying information of participants throughout the entire data analysis procedure.	All audio-recorded data was stored on a password protected laptop which only the research team are able to access. Once results have been documented and the research study published, all data will be destroyed. Identifying information of participants was removed from the transcripts and replaced with representative codes during the data analysis and dissemination of study results.

-Autonomy	Ensure participants have sufficient information to make informed decisions about participating in the research project. Participants needed to understand what was required of them should they consent to participate. They were also made aware that they were free to withdraw from the study at any stage.	All participants were invited to participate in the study on a voluntary basis. Initial contact was made via email or telephonically. The aims and expectations of the study were outlined within an information letter. Written consent was obtained prior to the commencement of the focus group discussion. At the time of obtaining written consent the researcher informed participants that they may withdraw from the study at any time, and that no negative consequences exist if participants were to withdraw from the study.	This information was communicated with participants in the information letter/consent letter which was read and signed prior to the commencement of the focus groups and semi-structured interviews. Contact details of the researchers were made available on all participant documentation, should the participants have wanted to discuss any concerns/ queries with the researchers during the study.
-Non-Maleficence	Provide access to additional support to participants if needed as a direct result of their participation in the study. The study was considered as involving minimal risk to	If any of the research personnel noticed that any participant became distressed during the focus groups/interviews the researcher would have provided them with the contact details of UCT's Child	Contact details of support groups run by NGO's such as Autism Western Cape and Down Syndrome South Africa, were available upon request.

	participants. However, it is possible that discussion of personal views, experiences and opinions during data collection, could have raised certain issues which are uncomfortable for the participants. In addition, researchers needed to ensure that transcripts of the interviews/focus groups accurately captured the information shared by the participants.	Guidance Centre where the families could access professionals able to help them work through the distressing issue(s).	
-*Justice*	Ensure fair and accurate representation of participants' views obtained during data collection procedures.	All participants were given transcripts of the discussions/interviews to verify and ensure that their perspectives and opinions were accurately reflected.	Participants received copies of the transcripts no later than 1 month after the focus group/interview was conducted. The participants had the opportunity to make corrections to the transcripts if needed.
-*Beneficence*	Reporting the benefits of the study to the participants in a truthful manner.	The consent letter clearly stated that there were no direct benefits for participating in this research project.	The consent letter to participants clearly stated that there were no benefits for participating in this research project. However, the long-

			term goal of adapting the EMT intervention for the SA context, was shared with the participants in the consent letter, to make it clear to participants why the study was being conducted.